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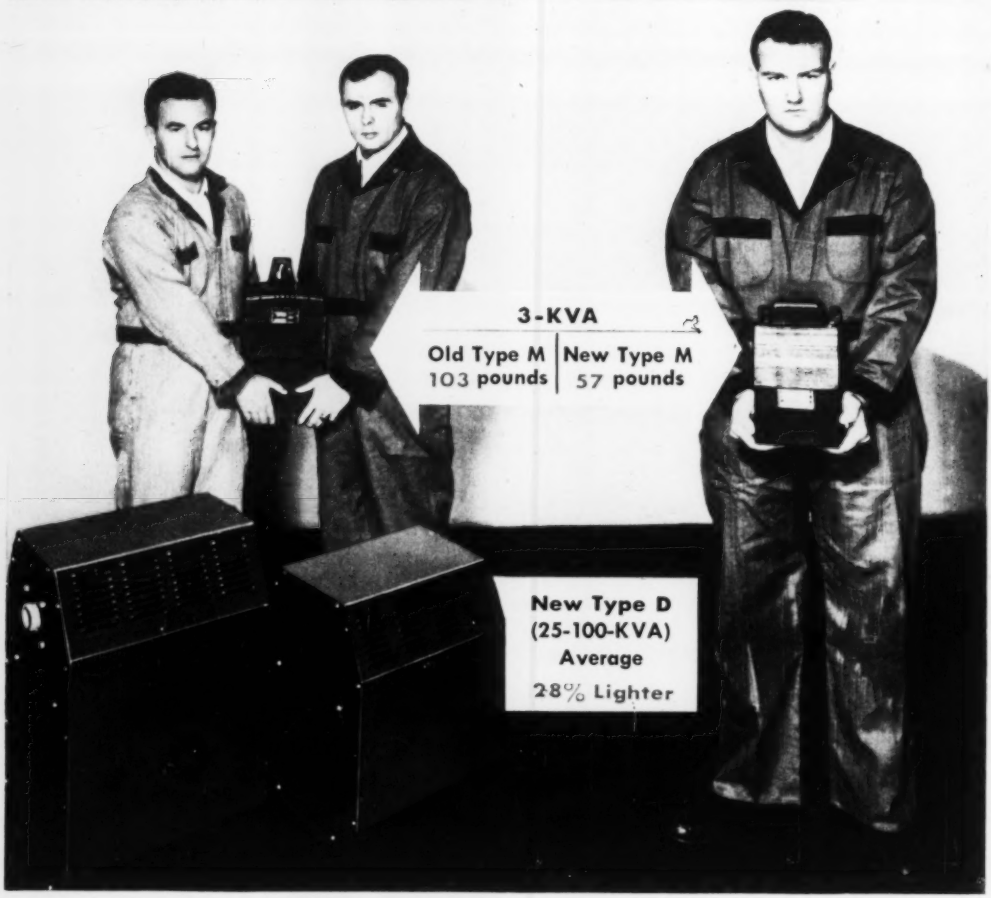

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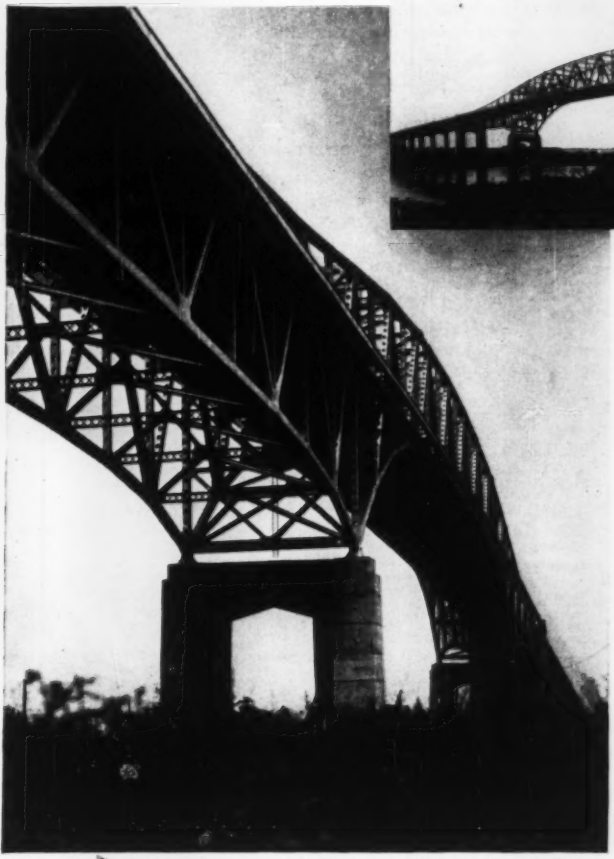
This closeup shows start of erection of a cantilever truss span over main river pier, without use of falsework.



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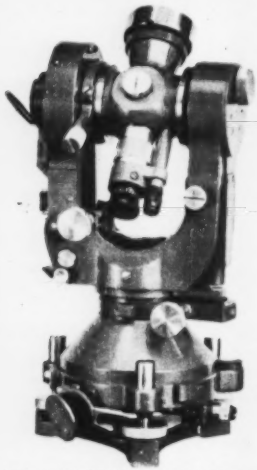

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Volume 147 DECEMBER 27, 1951 No. 26

WALDO G. BOWMAN
Editor

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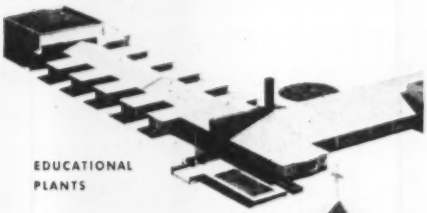

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READER COMMENT

Tunnel lining dispute

Sir: In the editorial "Contractor's Responsibility" (ENR Sept. 20, 1951, p. 21) you refer to this company's efforts to arouse public support for its differences with the Engineer of the City and County of San Francisco. We do not consider your editorial fair appraisal of the situation as it exists.

It was our belief that we left copies of our letters to the city's chief administrative officer, to the director of public works and to the city engineer in the City Hall press room at the request of the assistant administrative officer. Subsequent inquiry develops that this officer and our representative misunderstood one another on this point, leading to the erroneous impression, as reflected in your editorial, that our company actively promoted the publication of the letter in the local press. In no sense did we intentionally attempt to arouse public opinion or seek to try the case in the newspapers. It is on that score that we feel that we were unfairly criticized in the editorial.

LYMAN D. WILBUR
Vice President and Chief Engineer
Morrison-Knudsen Company, Inc.
Boise, Idaho

Editor's Note: In these circumstances, of course, the criticism does not apply to the Morrison-Knudsen Co. The principle set forth in the editorial—that questions of design should not be decided by public clamor—is, in our opinion, sound. That Morrison-Knudsen fully subscribes to this principle is more in keeping with our expectations.

Plans for the Nile

Sir: The article on the Nile Valley (ENR Sept 20, 1951, p 46) contains a number of inaccuracies, and some additional facts may help to provide a more complete picture.

Rain that falls in Uganda has no effect on the Nile flood of that year. This is because the discharge from the swamps of the south Sudan usually varies very little from year to year. Occasionally it builds up gradually over the years and produces widespread flooding in the Sudan, but the effect on Egypt is always delayed.

No dam or barrage on the Nile was "broken" by the great flood of 1946.

Nowadays there is never a real drought in Egypt, no matter how low the Nile flood may be. This is because the barrages make it possible always to command the irrigation canals. The effect of a poor flood may, however, be felt later in the season in the form of a shortage of stored water. This will limit the area that can be cultivated, but it hardly justifies your use of the expression "drought and suffering".

There is only one dam in Egypt and that is at Aswan. All the other structures that you call dams are in fact barrages. The purpose of a dam is to store water. The purpose of a barrage is to raise the level of the river so that irrigation canals can be commanded. A weir has the same purpose as a barrage, but the latter is a more elaborate structure with a series of openings controlled by gates.

The Jebel Aulia Dam is south, not north, of Khartoum. Please note the spelling. Gebel Aulia is a possible alternative, but both your versions are wrong. The storage capacity of this dam in cubic metres is 3.2 milliards (American billions), not 3.2 millions.

The primary object of building a dam at Lake Tana is to store water for irrigation purposes. The effect on main Nile flood peaks will be negligible because most of the water is derived from tributaries that join the Blue Nile below Lake Tana.

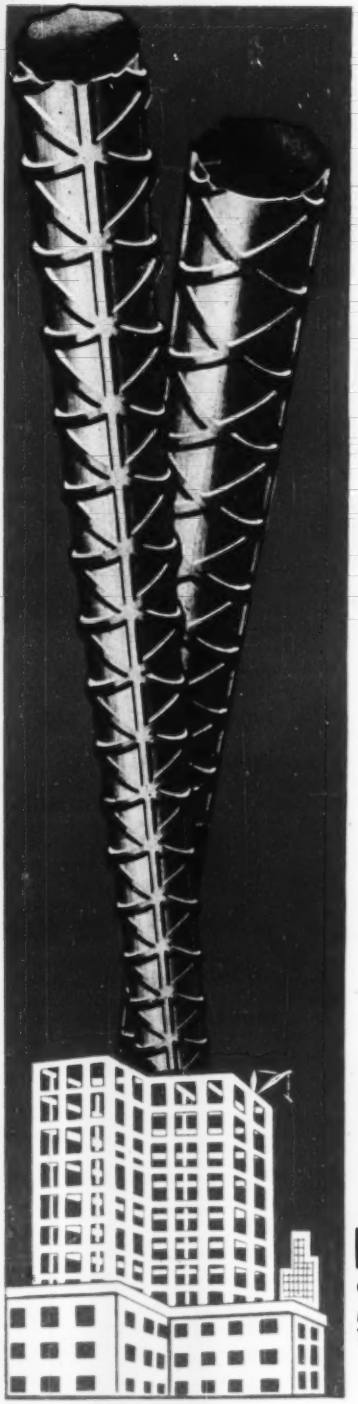
British Africa is a very vague geographical expression. British East Africa would be rather more specific, but what you really mean is Uganda. The Owen Falls, where a dam is now under construction, are at the outlet from Victoria; they have nothing to do with Lake Albert. The recent proposal to use Lake Kioga as a balancing reservoir is a new idea. Plans will be discussed immediately.

The object of the proposed Jonglei Canal in the Sudd Region of the south Sudan is to prevent the natural river channel being overloaded. It would have the indirect effect of drying up part of the existing swamps, but this is not the main object, and it is not intended to dig a network of drainage canals. Incidentally, in item (12) of your summary the "Dongola canals" should be the "Jonglei Canal". The distance from Jonglei to Dongola is about 1,500 river miles.

The Sennar Dam has been in existence for over a quarter of a century. Its capacity is about 780 million cubic metres. The Merowe Dam is still under discussion; it could probably store about 8 milliards as you say.

The figure of 34 billion cubic metres is presumably taken from page 30 of Volume VII of "The Nile Basin". It is in fact Dr. Hurst's estimate of the volume of water that will eventually be available at Aswan in an average year between the beginning

(Continued on page 7)



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③	.376	.375	.11	1.178
④	.668	.500	.20	1.571
⑤	1.043	.625	.31	1.963
⑥	1.502	.750	.44	2.356
⑦	2.044	.875	.60	2.749
⑧	2.670	1.000	.79	3.142
⑨	3.400	1.128	1.00	3.544
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(Continued from page 4)

of February and the end of July. For the period 1912-42 the natural flow of the Nile at Aswan averaged 83 billion cubic metres.

The Fuad I barrage was originally known as the Nag Hammadi barrage. They are different names for the same structures. The Edfina barrage does not store any water. Its object is to prevent salt water flowing in from the sea at the time of the year when all the fresh water in the Nile is being used for irrigation.

H. A. Morrice
Sudan Irrigation Department

Whither prestressing?

Sir: The two recent letters by Jacob Feld (ENR Oct. 11, p48) and Prof. George Winter (ENR Nov. 1, p65), stressing the need for breaking the momentum that the use of Europeanized prestressed concrete has gathered in America, demands an answer. Perhaps if we had gone along with prestress progress in Europe, we, too, would have developed, by now, the high-strength reinforcing steel, end-anchorage techniques and methods, and economical member shapes best suited to our country—and we could put it to good use at this time.

The question that Mr. Feld brought up as to the need of special equipment required for each job at a cost in excess of $25,000 will not preclude common use of prestressing. Just as we, today, in the structural steel field have fabricators and erectors specializing in steel construction, we, today, have several companies making this new construction method available; and even as in steel fabrication and erection they, too, have their own equipment for prestressing. Let the specialized companies do the job.

Mr. Feld's remarks about following European practice is good, but I disagree with his opinion that we will lose the most important phase—a new approach to the use of a new tool. Let us use European techniques and practices, and by daily use, we will develop our own techniques.

In contradiction to Professor Winter's remarks, I have recently made a survey of all engineering schools throughout the world, and I'm sure the results, especially of American institutions that are devoting a full course to the teaching of prestressed concrete, would be eye-opening. A discussion of the subject consisting of two lectures is a waste of time and effort. There might as well be no time spent on this matter if the subject is as simple as we are led to believe it is.

Martin Mahler
Union, N. J.

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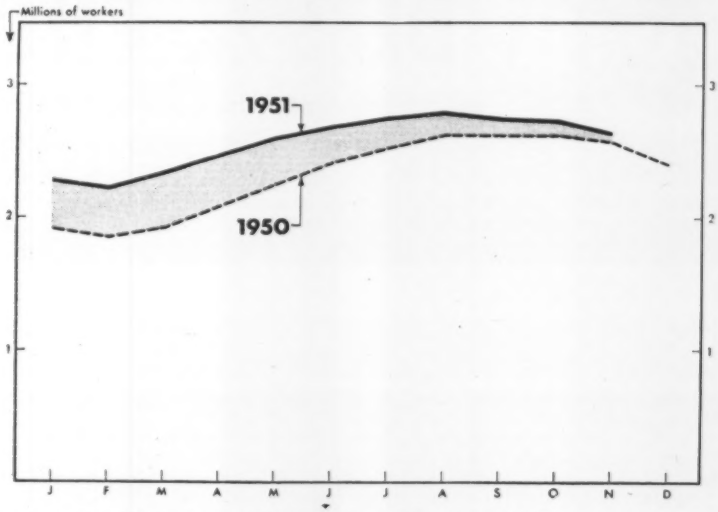

CONSTRUCTION employment is dropping toward 1950 levels, says BLS.

Defense means manpower problems for construction in 1952. Future defense production manpower needs are officially estimated at 2 million extra workers this winter, and 2.5 million more next year. Many of these workers must come from civilian industry—and some of them will come from construction.

But—though manpower will get tighter—there won't be a general shortage of workers. Prospect is for severe shortages in local areas—places with big defense contracts, like Wichita and San Diego—but surpluses in others. Only one type of labor shortage is likely to be nation-wide. That's a shortage of skilled labor and trained engineers; and that's the shortage that will continue to bother contractors.

Here are some reasons for not expecting a general pinch on construction labor:

• Construction won't need so many workers next year. The chart above shows construction employment is getting closer to year-ago levels with every month. And 1952 construction volume is likely to go below volume in 1951.

• The supply of labor will increase next year. The civilian labor force actually decreased by 300,000 between November, 1950, and November, 1951. That's mainly because the Armed Services grabbed a lot of young men. But next year the services won't take so many. So half a million or more young men and women will join the civilian labor force. On top of this "normal" increase, experts think that a million or more women and older workers may decide to take jobs.

• Over 1.8 million workers were still unemployed in November. Experts figure unemployment can go down to one million if demand for workers is heavy.

• Defense needs may be over-estimated. Washington officials now are lowering estimates of the number of new defense workers needed next year. One good estimate calls for 3 million instead of the previously-estimated 4.5 million.

• **The Outlook**—The labor supply will certainly get tighter. But there should be no serious country-wide shortage.

Skilled labor is another matter. Some skills have been scarce for months. For builders, engineers are the big problem. Estimates of the shortage of all kinds of engineers as of last June—after spring graduation—run up to 60,000. And this will be a long-run problem for builders and industry in general. Industry needs at least 30,000 new engineers a year, and annual graduations will soon fall well below 20,000.

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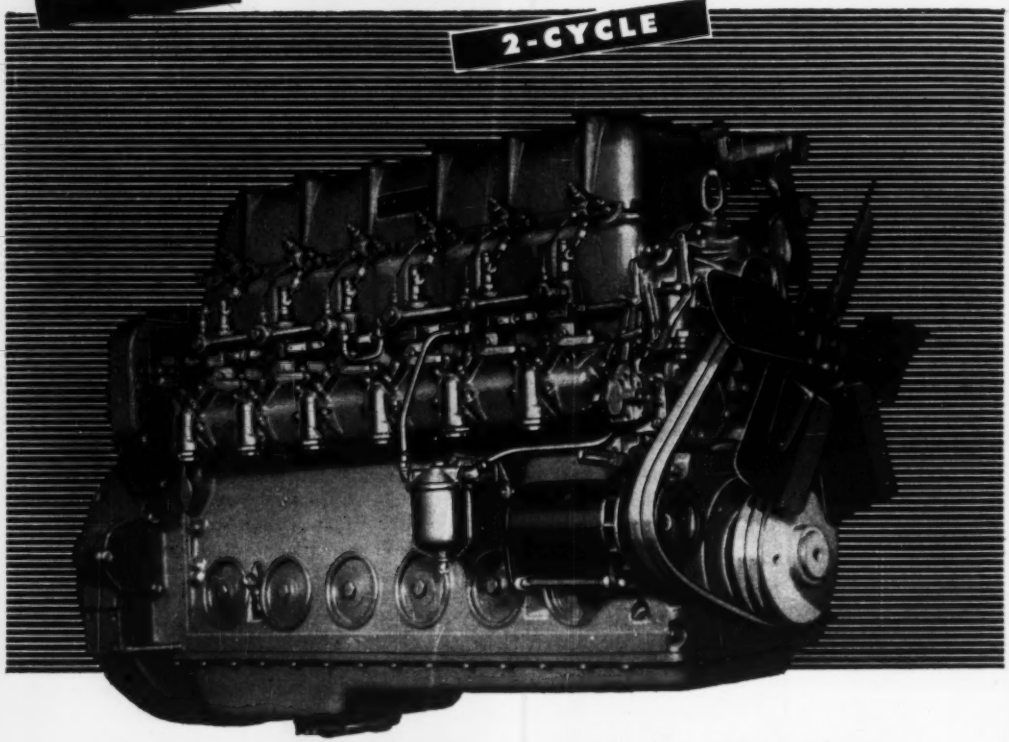

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EDITORIALS

Christmas is everyday

AT THIS TIME OF YEAR when the qualities of goodwill, kindness and thoughtfulness for others rise to their highest levels in men's thoughts, it is often rewarding to look at small, everyday deeds that give expression to these same qualities. Most frequently these deeds are done with no thought that they are unusual—which is, of course, what makes them noteworthy and significant. They are just simple examples of the essential brotherhood of man, but as such a true expression of the Christmas spirit.

One of these simple deeds of fine quality was a letter that M. H. Slocum, one of the nation's great construction superintendents, wrote in tribute to the men he had bullied, badgered and led in the building of Bull Shoals Dam. We obtained a copy of it quite by accident and reproduce it here as a Christmas message to engineers and construction men.

Written to the Army Engineer in whose district the dam is located, the letter stated "As is natural during and after such an accomplishment, everyone who had anything to do with it deserves full credit. My experience teaches that no one person, but a composite of contractors' forces and engineering personnel, headed in this instance by the Corps of Engineers, are responsible equally for such accomplishment.

"By this letter I commend the 'tops and the bottoms', particularly the inspectors of the Corps of Engineers and the 'muck stick artists' of the contracting force who bore the brunt of the direct labor of accomplishment. To them I humbly and symbolically doff my hat. I call particular attention to those few unfortunates who gave their lives; to them, if possible, my salute!

"Using the words of better men than myself I say to all: 'Well Done'."

Harvey Slocum would be the last man to think that this letter was unusual, or that he had done anything out of the ordinary in writing it. And he would be right. He merely proved that goodwill, kindness and thoughtfulness—the Christmas spirit—can be and frequently are natural human qualities.

Keep controls flexible

GOVERNMENT CONTROLS on construction are accomplishing their principal purpose—denying materials and money to less essential work, making them available to projects deemed essential to defense. It is against that fact that a growing protest against the controls, as typified by the meeting recently of representatives of the New York City construction industry and defense officials—must be weighed. But it must also not be denied that the protesters—not only in New York, but in Philadelphia and other "non-defense" areas—have a strong case. They are being hard hit, and the effects are not confined to their own businesses, but are spreading into the entire economic life of the areas affected.

Even though this was one of the foreseeable consequences of our guns-and-butter policy, it is not one to accept with resignation on the part of those who are harmed, or to be brushed aside arbitrarily by the control authorities.

The essence of operating controls to effect such a policy is flexibility in their application. When the stress becomes too great in one quarter it must be relieved. When better controls or the absence of controls seems to be indicated, the necessary steps should be taken.

All this is not to say that controls can be operated without discomfort or dislocation, or that it would be better if they were abolished altogether. The fact is that controls over materials are scheduled to be even more stringent during most of 1952. Defense officials are convinced that only by curtailing commercial building, non-defense housing, bridges and pipelines, for example, can needed military and industrial facilities get the steel and copper that they must have. Some segments of the construction industry—including engineers, contractors and building craftsmen—must plainly continue to make sacrifices, either in curtailed work or in the inconvenience of transferring operations to areas where work is more plentiful. Such transfer of manpower from non-defense to defense construction is indeed one of the sought-for objectives of the controls.

In the face of such a somber outlook it is particularly creditable that the complaints against controls are being accompained by sober, practical suggestions for changes. New York asked that materials allotments be made for an entire project instead of piecemeal by quarters, that reconsideration be given individually to commercial building applications to help ease unemployment. Philadelphia made similar pleas.

Detroit, faced with unemployment until its defense work gets rolling in late 1952, asked for and got more materials for some public works projects, indicating an equally gratifying response on the part of the federal control officials to the hardships complained of.

All this is right and proper because controls are fundamentally hateful and harmful, and they can only be made less so by cut-and-try operation. This requires constant objection and suggestions for change by those who must operate under them, and a readiness to consider modification on the part of the control authorities themselves. Controls must be kept flexible, even to the point where anyone of them is abolished completely and quickly whenever it begins to do more harm than good. Only in this way can there be both guns and butter. And both are necessary to the strength and security that the nation seeks.

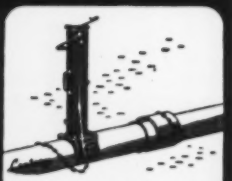
When new water main estimates exceed borrowing capacity

investigate "CENTURY"®

asbestos-cement pressure pipe

Light-weight, easy-to-handle "Century" Pipe can be stored wherever convenient; moved without special handling equipment.

Cut-away view of the "Century" Simplex Coupling. Simplex Couplings make immediately and permanently tight joints.



With this simple tool, even an unskilled laborer can quickly make a tight joint for straight runs or curves up to 5° deflection per pipe length using "Century" Simplex Couplings.

K&M Keasbey in asbestos ®

Now many communities can have modern water main systems—or extend existing systems—at costs that can be more easily amortized out of revenues. Residents can enjoy the convenience of centrally supplied water in their homes, plus the advantages of increased fire protection and often, lower fire insurance rates. Community planners find it easier to raise needed funds because of the relatively low-cost features of "Century" Asbestos-Cement Pipe.

"Century" Pipe is moderate in price. And, though it is exceptionally strong, it is also light in weight and easy to handle: installation is quick, easy, and at low cost.

Add to these the durability of "Century" Pipe, its absolute freedom from tuberculation, its high resistance to soil corrosion and immunity to electrolysis, and you'll quickly see why: *Before you buy or specify any pipe for water mains, it will pay you to investigate "Century" Asbestos-Cement Pressure Pipe.*

FREE booklet, "Mains Without Maintenance," sent on request. Write for it.

Nature made Asbestos... Keasbey & Mattison has made it serve mankind since 1873

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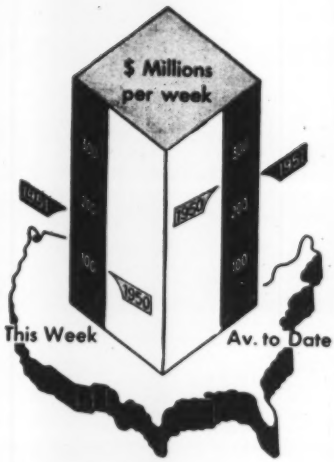
THE CONSTRUCTION WEEK

RECORD BOOM—The rate of industrial expansion in the first quarter of 1952 will be higher than any quarter in history. A joint survey by the Commerce Department and the Securities and Exchange Commission reported outlays of $5,000 million are planned. During peak World War II years, business put an average of only about $1,500 million into plant expansion. Percentage-wise the steel industry led record fourth-quarter spending with a jump of 120% over 1950. Chemical companies spent 65% more and petroleum companies 30% more. The Defense Production Administration has set new goals for steel expansion by 1954. It includes an increase of blast furnace capacity to 85 million tons—about 3 million more than was in operation or under construction at the end of this year—and a construction program for plants to process about 45 million tons of taconite ore costing about $500 million.

GONNA BE A FIGHT—Chicago isn't going to have an easy time building its new $85-million Central District filtration plant (ENR Nov. 8, p. 27) even though it took bids on initial work at the 65-acre lakefront site last week. A total of 51 objectors—including Northwestern University, and the North Central Association—served formal notice on city officials that they would rather see the plant built someplace else. Meanwhile the city had received a low bid of $6.6 million (from Great Lakes Dock & Dredge Co.) for construction of a cofferdam more than a mile long, pumping out 700,000 cu yd of silt and dewatering.



TOO MANY PROBES?—Builders of the government's vast H-bomb plant at Savannah River, S. C., have long been nettled by government investigations. Last week two investigators for the Senate-House Defense Production Committee reported that during September and October the Atomic Energy Commission and its contractor, E. I. du Pont de Nemours & Co., used up a total of 4,100 man hours taking part in inquiries. They have been "plagued with what they consider unwarranted and unnecessary investigations" by congressional groups. Committee Chairman Senator Burnet Maybank, commenting on the probes, said "some of the investigations have more than paid their way, regardless of the amount of time consumed."

Contracts by type of work

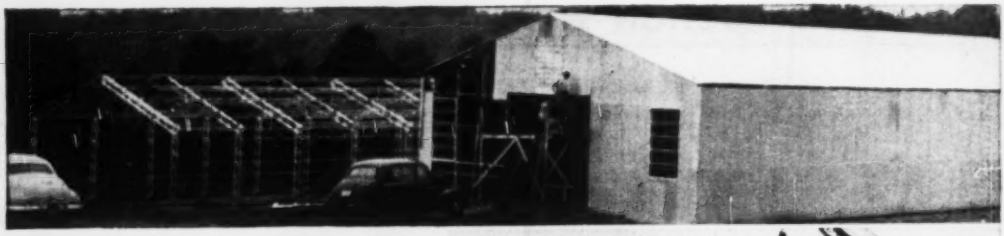
	This Week	Cumulative 51 wks 1951	1950	% chge
Waterworks	$2.4	$208.9	$214.6	−3
Sewerage	4.8	334.6	287.5	+16
Bridges	1.3	315.8	369.4	−15
Highways	14.6	1,167.2	1,268.2	−8
Earthwork, Waterways	1.3	504.5	416.6	+21
Buildings:				
Public	21.3	2,057.3	2,405.6	−14
Housg., pub.	15.6	644.0	359.0	+79
Housg.,priv.	47.1	2,032.4	3,116.8	−35
Commercial	5.8	599.8	975.1	−38
Industrial	46.8	4,119.4	1,682.9	+145
Unclassified	8.0	1,617.0	1,255.9	+29
Total	**$169.0**	**$13,600.9**	**$12,351.6**	**+10**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100	1913	1926	1949
Constr. Cost. Dec. '51	547.67	263.26	114.81
Bldg. Cost . . . Dec. '51	405.58	219.24	115.29
Volume . . . . Nov. '51	404	164	117

IN THIS ISSUE: Deadlocked wage negotiations in the steel industry promise cost increases and delays for contractors (p. 15) . . . Salary Stabilization Board makes more pay adjustments for engineers (p. 16) . . . First violation penalties are imposed by the Wage Stabilization Board (p. 17) . . . Seabee's are observing their tenth anniversary (p. 18) . . . A shift in mobilization policy may affect new plant construction (p. 21) . . . A legal struggle looms over construction of the Cowlitz River hydro-electric project in the state of Washington, here is the inside (p. 22) . . . New marble headstones honor U. S. war dead (p. 24) . . . Explosion-proof devices are used on new laboratory building (p. 26) . . . Experts hold a symposium on how to finance sewage disposal (p. 29) . . . Big plans are afoot for remodeling Kansas City (p. 41) . . .



CONSTRUCTION'S MOST INTERESTING TREND TODAY

The application of Light Steel Framing members seems unlimited if the diversified uses we have engineered and fabricated to date are any criterion of 1952.

These nailable steel framing members work as well in the high pitched roof of a church as they do in the low and rambling plan of the modern elementary school building.

As each project is individually engineered to the load and dimensions of a particular need, we invite your contact on any specific project for cost analysis.

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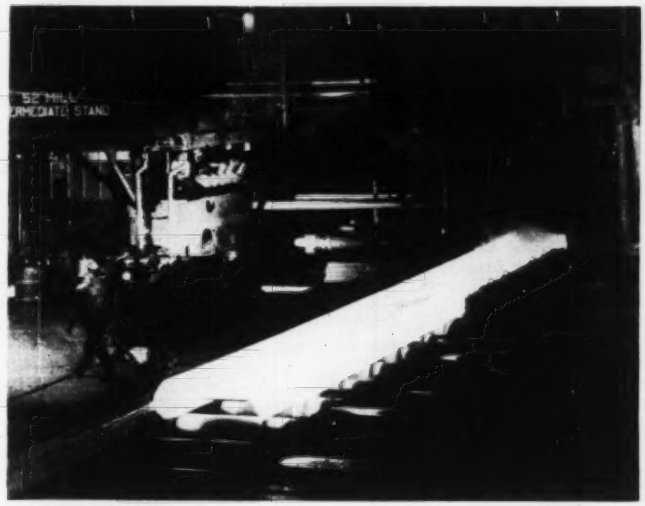


IT'S GOING TO COST MORE—Strike or no strike, the price of steel is going up—but the loss of production from a strike may cost the construction industry more. This white hot steel beam has just received its final shaping in the structural mill at U. S. Steel's Homestead (Pa.) Works.

Price rise, loss of steel loom as strike threatens

WASHINGTON—For contractors, the deadlock in contract negotiations between the steel industry and the CIO United Steelworkers of America, promises nothing but woe. Both the price of steel and its availability for construction are vitally bound up in the outcome.

Whether government efforts to avert the walkout set for Jan. 1 are successful or unsuccessful, the price of steel is going up. If the strike occurs, all present allotment schedules will be disrupted, and thousands of tons of steel production will be lost.

Estimates of the steel price increase range from $3 to $9 a ton.

Price Director Michael V. DiSalle said last week that peace in the steel industry "will not be bought with an unjustified price increase." Under the Capehart Amendment to the Defense Production Act, (which permits cost increases from the price freeze Jan. 25 through July 26, 1951 to be added to base period prices), the steel industry appears to be entitled to some increase—but not nearly enough to suit steel officials.

• **Range of views**—The steel industry is seeking a price increase which will compensate for increased labor costs.

Steelworker President Philip Murray has present demands for a 15-cent hourly wage increase, plus another 15 cents an hour in fringe benefits. This is twice what the government's wage formula will allow and then some.

But if settlement is for 15 cents an hour, an industry-wide price increase of more than $11 per ton based on this year's shipments would be required to offset the wage increase, according to Mr. Fairless' figures—not counting any raise justified under the Capehart amendment.

Mr. Murray estimates the cost to U. S. Steel will not be more than $6 million a year, tops. Under his estimate, a 15-cent hourly increase would cost over $4 per ton on an industry wide basis—in addition to Capehart adjustments.

In each case, the price of fabricated steel would be considerably more. It would reflect the increased cost of steel, plus increased labor costs for fabrication.

• **Loss will hurt**—Whatever price increases in steel result, almost all contractors are covered so that they will not lose money on contracts now in force. What will hurt contractors most, will be the loss of steel and delays in construction any walkout will cause.

Here are a few figures on the magnitude of its effect:

(1) For each day of strike there will be a loss of 15,000 tons of heavy structural production. Nearly 10,000 tons of this will be lost to the construction industry—the rest to other industries using structurals. The amount lost in one day will nearly equal the requirements for the United Nations meeting hall under construction in New York; in six days it will equal the total structurals used in the 102-story Empire State Building.

(2) For each day of strike there will be a loss to the construction industry of about 50,000 tons of carbon steel going into every phase of building from nails to plumbing pipe. Over 5,000 tons of reinforcing bars will be lost.

(3) The results of these losses will mean cuts in allotments for the first quarter of 1952, the brunt of which will fall on commercial and other construction non-essential to the defense program. But under new governmental policy, all construction may be effected. (See story on page 21.)

(4) Increases in steel wage rates will obviously mean demands for further increases in the building trades.

• **What is the outlook?**—Unless President Truman intervenes, it appears a walkout will occur on Jan. 1 and may last about a week. The union's wage policy committee has ruled out in advance any government plea to delay the walkout and barred Mr. Murray from accepting any truce plan until the 3,000 rank-and-file delegates have had an opportunity to consider it at a special convention, now slated for Jan. 3.

When the walkout occurs, President Truman is expected to send the dispute to the Wage Stabilization Board and request the union to go back to work until the board proposes a settlement. The union is expected to accept.

A strike against the steel industry will probably be extended to Aluminum Co. of America and Kaiser Aluminum and Chemical Corp. The Reynolds Metals Co. contract is not up until April.

Salary Stabilization Board permits payment of 'overtime' to engineers

WASHINGTON—The Salary Stabilization Board last week made further concession on salary adjustments which employers may make without the need for getting approval. They pertain to compensating professional engineers for longer weekly hours and to bonus payments.

SSB made applicable to engineers a rule it announced earlier for foremen and other supervisors. Text to the board's General Salary Order No. 8 is as follows:

REGULARLY EXTENDED WORK-WEEK FOR PROFESSIONAL ENGINEERS
STATEMENT OF CONSIDERATIONS

Many professional engineers are regularly required at the present time to work hours in excess of those that were contemplated in determining their current salaries. The purpose of this order is to authorize the payment to such engineers of additional compensation under the circumstances and in the manner set forth in this order.

In the formulation of this order due consideration has been given to the standards and procedures set forth in Title IV and Title VII of the Defense Production Act, as amended; there has been consultation with industry representatives and consideration has been given to their recommendations.

Sec. 1. Scope of this order. This order applies to professional engineers. For purposes of this order a professional engineer is a person employed in a professional capacity, who, by reason of his special knowledge of the mathematical and physical sciences and the principles and methods of engineering analysis and design, acquired by professional education and practical experience, is qualified to practice engineering.

Sec. 2. Extended work-week. (A) An employer who on or prior to Jan. 25, 1951, had a plan or practice of paying professional engineers additional compensation for hours worked in excess of a normal work-week may continue to pay additional compensation to such employees in accordance with such plan or practice.

(B) An employer who did not have such a plan or practice may pay a professional engineer employed in a professional capacity, as distinguished from an executive, administrative, or outside salesman capacity, additional compensation during a regularly extended work-week for hours worked in excess of the normal work-week. But the additional compensation shall not, without approval of the office of salary stabilization, exceed his straight-time rate.

• **As to bonuses**—Employers may give salaried employees and others under SSB's jurisdiction a token $40 Christmas or year-end bonus—in cash or in kind—with no strings attached. The amount need not be charged, either, against whatever bonuses he may be entitled to grant under the normal bonus regulations. In this respect, SSB is more liberal than the Wage Stabilization Board's $40 bonus allowance.

Where an employer has not given a bonus before and thus could not give one this year under SSB rules, he may put together a bonus from what he may have left under the ten per cent "catchup" or the "ratio" formula for maintaining differentials with wage earners. What the employer can do is compute the left-over on an annual basis and pay it as a bonus instead of putting it into salaries.

A word of caution: what is used from the ratio formula cannot, within a year, be used for salaries. Since the ten per cent catchup covers a retroactive, rather than forward, period, it can still be added to salaries after putting it into a bonus.

In growth industries and in other cases where inequities and hardships can be shown, SSB will consider applications for approval of more liberal bonuses.

GI home loan probe finds irregularities

SAN DIEGO, CAL.—A two-day hearing conducted by a congressional committee here in mid-December put into the record testimony that a number of contractors, Veterans Administration officials and loaning agencies had "an understanding" which increased the cost to veterans of VA-insured mortgage homes by hundreds of thousands of dollars.

The case had caused considerable comment in construction and loaning agency circles since last June when FBI agents arrested the first of 10 persons in connection with a probe of VA Loan Guaranty Division practices here.

The committee to investigate GI home loans and GI education is headed by Rep. Olin Teague, Texas Democrat. It conducted a number of similar hearings across the nation. Teague said however that the San Diego case seemed to be particularly significant, "perhaps because it went on for a longer period of time."

• **Findings listed**—A summary of the accusations of malpractices was put into the record by John Orr, VA investigator, who sat with the committee. It concluded:

- Circumvention of credit restrictions by alteration and antedating of documents pertaining to VA appraisals.
- Use and purchase of certificates of eligibility of veterans entitlement by individuals in the building trade.
- Fee basis compliance inspectors charged for and submitted compliance inspection reports on veteran housing when no inspections were made.
- Officials of lending agencies shared in profits derived from various tracts, resulting in unjustified increases being passed on to veterans.
- VA personnel allowed and approved excessive cost for non-realty items such as water softeners. They allowed excessive charges purporting to represent closing costs.
- Builders and contractors failed to meet minimum construction requirements, and VA Loan Guaranty Division officials failed to require submission of plans and specifications with appraisal requests.

• **Resign in**—The three top officials of the VA Loan Guaranty Division office in San Diego resigned shortly after the first arrests were made in the case. These are Charles A. Dodge, chief of the division; Francis G. Paige, assistant loan guaranty officer; and Robert S. Wyman, former chief appraiser for the division. Paige is under federal indictment charging he accepted a $500 bribe to influence his appraisal on a house.

Russell G. Mahar, who took over as chief of the VA appraisal section after the shakeup, told the committee that records showed in many cases no plans had been submitted by contractors in applying for GI-insured mortgage loans and in many others there were no specifications.

He added there could not have been any consideration given to compliance with VA general construction requirements. Pressed by Mr. Orr to name the contractors, Mahar testified, "I would say it was a general practice."

Under further questioning he named as "principal violators" the Hubner Building Co., the Cosgrove Building Co., Rolando Homes, Inc., and J. W. Anderson, contractor, all San Diego firms.

ACTION AT DETROIT HEARING—Council W. Caldwell (right), Department of Labor investigator, on the stand during WSB hearings in Detroit which ended last week, finds opposition from Hedin Construction Co. attorneys Stewart R. Carter, Jr. and Edward P. Felker. Left to right are: Leonard A. Keller, chairman of the Regional Enforcement Commission; Rev. G. Paul Musselman, member; Russell Helterline, enforcement attorney (back to camera); Mr. Carter and Mr. Felker.

WSB imposes first violation penalties

WASHINGTON—While construction industry employers awaited the outcome of the Detroit hearings over allegedly illegal wage rates to bricklayers, (ENR Dec 20 p. 23), the Regional Wage Stabilization Board at Atlanta imposed first penalties for wage stabilization violation.

In Detroit, the J. D. Hedin Construction Co. has been charged by the Michigan WSB of violating wage stabilization. Both parties are preparing to file final briefs on Jan. 3 and the Regional Enforcement Commission will announce the decision three days later.

What effect the Atlanta decision will have on the Michigan commission is anybody's guess. The four employers penalized are definitely considered to have gotten a "break." A regional commission has the power to deny total illegal wage payments for income tax purposes, and to disallow the wage payments as item in determining costs or expenses under any government contract or in setting or approving any maximum price ceiling. If the case were referred to the Department of Justice for prosecution, penalties provided for by the Defense Production Act include a $10,000 fine and/or a year in jail.

But the penalty agreed upon by both employers and WSB enforcement attorneys in Atlanta was disallowance of only the excess pay as a cost for income tax purposes.

For example, Gray Knox Marble Co., Knoxville, Tenn., one of the firms cited, gave three five cent increases to 83 employees from May 1950 to April 1951, with the last piercing the 10% ceiling. The total illegal wages paid came to $80,000, but the illegal excess was only $5,200.

The other violator exceeding the 10% "catchup" formula was the Commercial Bank of Panama City, Fla. The two other firms named were penalized for bonus violations. They were the J. O. Goshorn Co., Memphis, and M. P. Brothers of Nashville.

Bridge bond sale made after long legal tangle

SAN FRANCISCO—The California Toll bridge Authority last week managed—through a dramatic legal maneuver—to sell $21 million worth of refinancing bonds on the Oakland-San Francisco Bay Bridge, preventing the bridge from becoming debt- and toll-free.

Had the sale been stopped, it would have been next to impossible to finance an urgently needed second crossing that has been blocked by political controversy over a period of years.

An eleventh hour extraordinary session of the State Supreme Court lifted a temporary restraining order which would have prevented the authority from selling the revenue bonds—and did keep the sale from being finally approved.

• **Touch and go**—If the authority had not been able to accept bids as scheduled, it would have had to re-advertise. Technicalities then could have kept it from selling the new bonds before a Jan. 15 deadline, when enough toll revenues would have accumulated to signal calling in of outstanding bonds.

Sale of the refinancing bonds was voted by the toll authority in a late-November meeting. (ENR Dec. 6, p. 27.)

The restraining order had been issued a few days earlier by Superior Judge Daniel Shoemaker on the petition of a commuters' group fighting the bond sale and continued tolls.

The special Supreme Court session was convened on a half hour's notice at the request of the state attorney general's office. Fortunately for the state, all seven members of the Supreme Court happened to be in San Francisco.

• **Situation cloudy**—The bond sale, to a syndicate headed by Blyth & Co., was not final, since the Superior Court had yet to act on its temporary restraining order. There was a chance that it would on Dec. 21 give the toll authority a go-ahead on the bond sale.

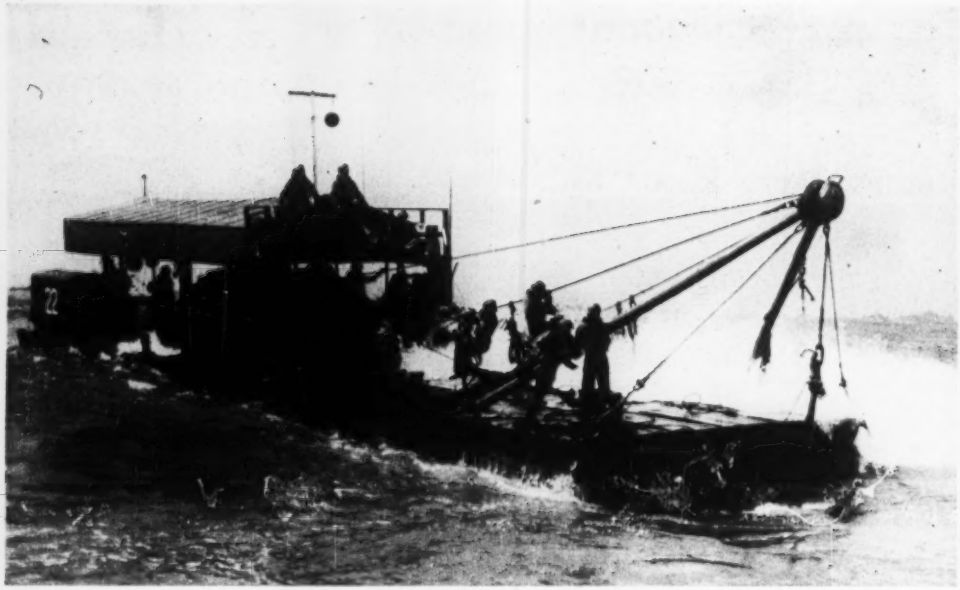
However, it was expected that the sale would continue clouded until a Supreme Court hearing set for mid-January.

A condition of the bond sale would permit the cancellation of the deal if all litigation has not been settled in favor of the authority by Jan. 14.

New York building slump stirred by school awards

NEW YORK—In a special meeting last week the Board of Education awarded contracts totalling over $22 million for construction of 13 new school units here. They brought the 1951 total to 31 starts.

In addition, the Board of Estimate approved a capital budget containing $68 million in new funds to begin construction of 21 new schools in 1952. It was largest single item in a budget totalling $505 million. Meanwhile unemployment in the building trades here approached 20,000, as housing and commercial building continued to slump.



AMPHIBIOUS SEABEES on a warping tug, an assembly of 36 steel pontoons, lay surfacing anchors for securing a causeway pier. This method of taking a "toe-hold" on a tidal beach is an old trick for men of the amphibious Construction Battalions.

PONTOON CAUSEWAY is pulled ashore by Navy Seabees. Soon it will be bridging trucks and supplies from LSTs waiting off-shore. Mock invasion operations like this are a part of military tactical training given Seabee units. Similar units played an important part in landing operations at Inchon, Korea. (U. S. Navy photos)

Navy's Seabees

WASHINGTON—The Navy's famous Seabees are having a birthday this week.

On December 28, the "Can Do" construction men of World War II will celebrate their tenth anniversary by performing their duties at more than 30 naval bases and stations throughout the world.

The construction battalions have gained muscle since the outbreak of hostilities in Korea and, once again, are ready and able to defend what they build. According to Rear Admiral Joseph F. Jelley, CEC, USN, Chief of Naval Civil Engineers, the Seabees, "are now able to handle any job likely to be assigned them."

Seabee work today includes building airstrips, roads, piers, utilities, and ammunition and fuel storage needed to give vital overseas support to the fleet and its air arm. They are also putting back into good shape many of the structures that supported the Navy's drive across the Pacific in World War II.

They have the advantage of experience gained by pioneering Naval Construction Battalions in the war with Japan and Germany. Many of the Seabees now on active duty are World War II veterans, who volunteered to

LEARNING TO FIGHT is an important part of the Seabees' job. They get their infantry training from the Marines. Past experience has taught them they must defend what they build.

LEARNING THE JOB, a Navy Seabee, armed with a surveyor's transit, practices his skill during a refresher course with a mobile Construction Battalion at Point Hueneme, Cal.

celebrate their tenth birthday

serve in the Seabee Reserve after the war. This solid core of older, seasoned and skilled men has given their outfits the effectiveness the present emergency requires.

• **New program**—To prepare Seabees for assignments that may be given them, a stepped-up training program is underway at Point Hueneme, California, and Davisville, Rhode Island.

The American construction industry deserves credit for the accomplishments of the Seabees because it provided on-the-job training for future Seabees. The majority of the men who have served in the construction battalions developed their skills while employed on civilian construction jobs. And industry, as well as organized labor, cooperated with the Navy in recruiting skilled men for World War II construction battalions. Thousands of former Seabees are today employed by contractors, and a large number of these veterans are engaged in construction for the defense of the nation.

The Seabees, whose wartime strength reached a quarter of a million, reckon their birthday from December 28, 1941, just two weeks after the fall of Wake Island. The capture of the Navy's defenseless civilian construction workers at Wake pointed up the need for a construction force with military status.

• **Volunteers**—Most of the early Seabees were older men with families. Although few were subject to the draft, 100,000 skilled workmen volunteered during the first few months of the war.

Except for basic military training and discipline, the Navy had little to teach its Seabees. Years spent working at their respective trades had provided them with the civilian skills which they would use after changing from working clothes to Navy uniform.

The Seabees "taught the Navy a lot more about construction than the Navy taught them," is the opinion of Admiral Jelley.

Under the leadership of officers in the Navy's Civil Engineer Corps, who spoke the same language as the skilled workman, many of the Seabees came out of the war with added experience and new twists to their skills.

• **Seek men**—Because of their fine wartime record, the Seabees were made a permanent part of the Navy in 1946. At the same time, the Navy authorized a Seabee Reserve organization which became an important source of personnel when fighting began in Korea.

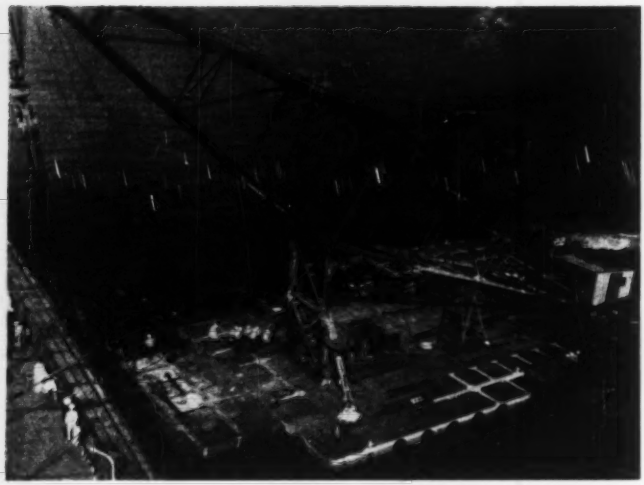
To fill Reserve ranks, depleted by the calling of Reservists to active duty, a Reserve recruiting campaign is underway. Recruiting has been good, but the Navy is still seeking men for the Seabee Reserve. The principal need is for older, skilled workers.

A strong Reserve is required not only to back up the Seabee force in active service, but also provide a nucleus for speedy expansion.

The outstanding performance of the Seabees at Inchon early in the Korean war was made possible by the post-war programs of the Reserve and regular force. While the Reservists were engaging in training, in addition to working on civilian jobs, the regulars were keeping in trim by participating in various exercises, expeditions and atomic tests. They were also at work on Navy construction overseas.

With the training and experience behind them, Seabees at Inchon added luster to the tradition built up in World War II. The placing of a vital pontoon dock in a swift tide under enemy fire was a typical feat of the Seabees.

(*Continued on next page*)



"RUSH HOUR" piers are carried with the Seabees. They cradle them to the side of an LST. This cantilever-type crane, on a pontoon barge, lifts a causeway section into place. Each section of the causeway is made up of 60 pontoons and weighs about 90 tons. (U. S. Navy photo)

Seabee birthday . . .

• **New organization**—Modifications in the organization and designation of all but two of the old Naval Construction Battalions have been made during the past two years. The new organization provides for Amphibious Construction Battalions (ACB); Mobile Construction Battalions (CBMU) each about one-fourth the size of a normal battalion, and construction Battalion Detachments (CBD)—small units which are trained for special duty.

On their tenth birthday, the Seabees are still strong in adaptability although the force is small compared with the huge World War II organization that took part in every major amphibious operation of American troops. They are keeping alive the aggressive "Can Do" spirit and ingenuity which carried them to remarkable achievements in a global war.

Steam plant co-ops face injunction

Ten Missouri power companies are seeking an injunction against use of Rural Electrification Administration funds for construction of super-cooperative steam plants.

The power companies attorney, Raymond Jackson, states the project would call for $55 million in REA funds, and agreements have been made under which Southwestern Power Administration would buy power from the super co-ops and then the Southwestern Power Administration would lease the lines in competition with private companies.

Jackson argues that Congress had failed to approve appropriations for SPA to build steam plants and power transmission lines that would compete with private firms. The SPA, he claims, is without authority to lease steam generating plants and acquire transmission lines, except by Congressional action, or sell electricity outside its original area which does not include parts of Missouri.

• **North Carolina**—The Blue Ridge Electrical Membership Corp. of N. C., faced by opposition from Virginia interests, has substituted a new plan for their proposed diversionary dam across the New River near Jefferson, N. C. The Corporation now plans to build a power house downstream from the proposed dam site which would be fed by a reservoir by a 1,500-ft tunnel.

• **New Jersey**—Public Service Electricity and Gas Co. announced projected construction expenditures has been raised to $200 million for the years 1951 through 1955. Present plans call for additional generating capacity that will increase their total capacity to an output of more than 2 million kilowatts.

NEWS BRIEFS

• **Anti-glare doesn't work**—Glaziers installing anti-glare glass on the state office building at Phoenix, Ariz., (ENR Dec. 6, page 53 and Dec. 13, page 38) were halted after 36 of 450 panes were replaced. Office workers said the new glass just couldn't cope with the Arizona sun. Projecting shades over the window rows worked fine in summertime, but didn't check the slanting rays of the winter sun. State officials at last reports were considering venetian blinds or drapes.

• **Use European steel**—The Michigan State Administrative Board has allowed the State Highway Department to stockpile 60 tons of European-made steel for highway bridge emergencies, although it costs 40 percent above current prices for domestic steel. Deputy Highway Commissioner H. C. Coons said that it had been virtually impossible hitherto to get steel for bridges.

• **New transit work starts**—First actual construction work on the Cleveland Transit System's 13-mile long rapid transit lines will be started in January, following the awarding of a contract Dec. 11, to the Horvitz Company to build four street-spanning and two entry-spanning bridges.

• **Fluoridation scoreboard: Indiana**—Fifty-six Indiana cities and towns now get fluorides to aid tooth decay prevention, according to the Indiana State Health Board. Five others have purchased or ordered fluoridation equipment, 16 have plans, and 62 others are investigating. Of the 56 with adequate supply in their public water, 53 have a natural content and three—Indianapolis, Fort Wayne and Huntington—added fluorides to their water supply in treatment plants.

• **New homes in Delaware**—3,500 new homes are planned near Newark, Del., site of a multi-million dollar tank arsenal now under construction. Request for a Veteran's Administration appraisal of 1,168 of the project's total was announced by J. MacDonough.

• **Water pollution fight**—Grand Rapids, Mich., questions the legality of a superior court suit started by the Michigan Water Resources Board demanding the city increase sewage disposal facilities. The board has asked for enforcement of a 1949 order that Grand Rapids halt pollution of Grand River. But the city claims 12 reasons why the order is not valid and challenges the legality of the statute.

Shift in mobilization tactics pushes use of old plants before building new

WASHINGTON—Mobilization policy is undergoing a shift. All-out expansion of defense production facilities is becoming less important than maximum use of those already built.

What this will mean to the construction picture will not become clear until allotments for the second quarter of 1952 are made. These will reflect any increased diversion of metal supplies from construction to other defense programs.

Here is what the mobilizers are thinking:

We've bitten off more mobilization than we can chew. So now we are starting over and taking our arms buildup in smaller bites.

• **Carrying overload**—Basically, what has happened is this: the piling of a considerable overload on our industrial capacity. The mobilization bosses tried to get too much at once—not just all types of weapons, but more steel, more aluminum, more machinery, more freight cars and whatever else was needed to back up bigger military forces.

They got a lot of weapons, new plants and equipment—finished and underway.

But the shotgun approach did not get enough in the way of highly critical items—jet aircraft, tanks, guided missiles, to name a few—or of new plant and equipment to produce them. Instead, bottlenecks formed in these items, partially, at least, because production of less urgent defense items competed successfully for materials, machinery and manpower.

Washington is trying a sharpshooting technique. There will now be concentration on a few badly wanted weapons at a time, to get production rolling on a plant-by-plant basis. You will see production delayed of other weapons which compete for the same tools, machinery, components or technical know-how.

This will mean juggling of plans by more than those producers now working on military contracts. It means that the businessman preparing to turn out bolts, gears, bearings or some other components for a less critical defense item will be told to drop—or defer—such orders. Instead, the orders will be to turn out parts for aircraft, tanks or some other top urgency item.

And the company expecting to build a new plant for such production may lose its contract to a firm that can do the same job with existing facilities. In fact, anyone planning a new plant will have a tough time getting government approval to start construction or machinery to equip it.

• **Policy shift**—All this doesn't represent a change in Mobilization Boss Charles E. Wilson's dual economy, guns-plus-butter policy. Rather, it's a shift in tactics for handling the guns, scheduling their production in detail on a first-things-first basis.

Author of the switch in military production tactics is Wilson's top assistant, Clay P. Bedford, executive vice president of the Kaiser-Frazer Corp. For the last six months, he's been Wilson's chief bottleneck buster. In January he will go to the Defense Department to serve Secretary Lovett in a similar capacity.

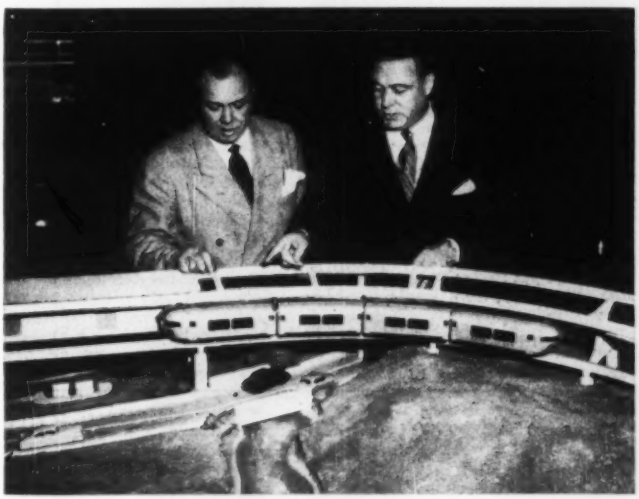
But Bedford's plans for a pinpoint attack on specific production bottlenecks has already been put into operation, at the Defense Department and in the civilian controls agencies.

He has forced the brass to set up a realistic system of priorities for production programs. In the top bracket are a handful of items such as jet aircraft, atomic weapons, tanks. The priorities will change as production bottlenecks are broken and new critical requirements develop. But even the top priority programs will not be permitted to compete.

And for a time, too, the broaden-the-base policy—get contracts into a large number of plants on a one-shift-a-day basis rather than in a few producing all out—will be given up. At least, so far as military components are concerned.

For example, a contract for gears for tanks no longer will go to a manufacturer who has to build a new plant or completely convert his present facilities. Instead, the mobilizers will look for a gear maker now supplying the auto industry who is not using all his equipment because of the cutbacks in car production.

Bedford has started gearing up the Defense Production Administration—He also is a deputy to DPA Boss Fleischmann—to help with this job. DPA's new facilities Review Board now is scouring the country to find facilities idled, or soon to be idled, by restrictions on consumer production. The board and Defense Department experts will then try to work out means of putting military orders in such plants. Where some conversion is necessary, tools and equipment that have been ordered for an entirely new defense plant will be diverted.



SUPER RAPID-TRANSIT—A scale working model of a "Railplane" is examined in Los Angeles, Calif., by Ayres Houghtelling, design engineer, and John A. Hastings, former New York State senator, creator of the system. The "Railplane" has been proposed as a solution for Greater Los Angeles' traffic problems. The cars are supported and propelled by wheels riding on a single rail below and are guided by another rail above. The trains are as completely locked and safe as elevators in their shafts, Hastings says. In urban transportation with frequent stops, average speed could be maintained at 50 mph, he says. (Wide World photo.)

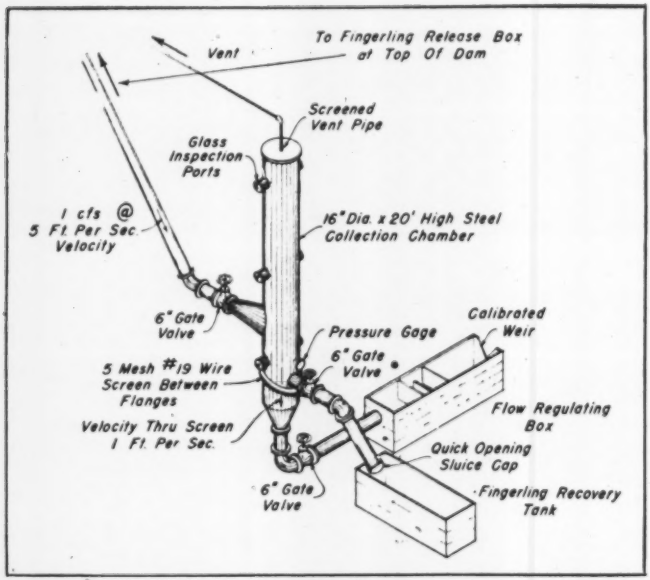

To Fingerling Release Box at Top Of Dam
Vent
Screened Vent Pipe
Glass Inspection Ports
1 cfs @ 5 Ft Per Sec Velocity
16" Dia. x 20' High Steel Collection Chamber
6" Gate Valve
Pressure Gage
Calibrated Weir
6" Gate Valve
5 Mesh #19 Wire Screen Between Flanges
Flow Regulating Box
Velocity Thru Screen 1 Ft. Per Sec.
Quick Opening Sluice Gap
6" Gate Valve
Fingerling Recovery Tank

Fig. 1. TO GET FINGERLING SALMON down past high dams on the Cowlitz River it is proposed to guide the young fish into a system of large pipes in which they can be lowered past each dam without injury. Dimensions given here are for the test installation at Alder Dam.

Power wins over fish . . . temporarily at least

HYDRO POWER won a major victory over the famous Columbia River salmon a few weeks ago when the Federal Power Commission granted the city of Tacoma permission to build two power dams on the Cowlitz River in the State of Washington.

Pacific Coast fish and sporting interests have been fighting for years to keep the Cowlitz free of power dams, claiming that high dams would stop salmon from using the river as spawning ground, and would damage the salmon-fishing industry. In 1949 these interests succeeded in having the state legislature declare the Cowlitz River a fish sanctuary. That act limits the heights of dams to 25 ft, which salmon can pass easily by means of a fish ladder—a series of pools in steps down which water flows during the salmon runs.

But that dire consequences to the salmon industry would follow the construction of the high dams is stoutly denied by Clifford A. Erdahl, Tacoma's commissioner of public utilities.

Use of the facilities for getting fish past the proposed dams that were included in the city's application for an FPC permit, he says, combined with proper fish culture in the new spawning grounds to be opened to salmon by reservoirs back of the dams, will actually expand the productive capacity of the river.

Tacoma's application for a permit had been before the commission for more than a year, and victory seemed assured when, in November, Defense Mobilizer Charles E. Wilson intervened in Tacoma's favor, urging the FPC to act favorably in view of the power situation in the northwest.

• **Fight not won**—But the people who have opposed construction of the dams say they have only begun to fight. Governor Arthur B. Langlev of Washington declares that the state is obliged to bring court action to test the power commission's right to grant a license in view of the legislative mandate to preserve the river as a fish santuary. And the Washington State Sportsmen's Council says it will carry the fight to the U. S. Supreme Court.

The Washington State departments of fisheries and game have also announced plans to contest the FPC decision. First they will appeal direct to the FPC to change its decision. If they fail there, they plan to appeal to U. S. Supreme Court.

• **Much power proposed**—Two high dams, one at Mayfield and one at Mossyrock are planned, plus construction of power plants to produce 345,000 kw, all at a cost of $142,000,000. Ultimate capacity is 460,000 kw. Commissioner Erdahl states that current plans call for putting the first generators into service in the fall of 1953.

• **Fish passes planned**—When Tacoma filed its application with the FPC it included a novel proposal for getting fingerling salmon down past the dams without injury. A test installation of this arrangement, made at Alder Dam on Nisqually River, has shown favorable results.

In granting a license, the FPC stipulated that the fish handling experiments be continued and that such facilities as prove most satisfactory are to be built at the dams as part of the permanent work.

As a matter of fact, getting spawning salmon upstream past a high dam no longer appears to be an unsolved problem. Experience at Bonneville Dam (70 ft high) on the Columbia

Fig. 2. EXPERIMENTAL FISH BY-PASS at Alder Dam built to demonstrate the practicability of the method shown in Fig. 1.

has shown that salmon will go up the fish ladder there. They are attracted by the overflowing water from the lowest pool, jump into it, and so on up from pool to pool.

For a dam too high for such a ladder—such as the proposed structure on the Cowlitz—all that appears necessary for fish going upstream is to build the lower pool or pools of a ladder like the one at Bonneville. Once fish have been attracted up into such a pool they can be directed into elevator tanks and lifted over the dam.

The problem cannot be met so simply for the young fingerlings going down to sea. They are not so easily kept out of the power intakes as are the large fish, and many of them are badly injured by abrasion in going through the turbines or are killed by rapid decompression as they pass from the penstock through a turbine runner into the draft tube.

As the head on the turbines increases, the danger to fingerlings becomes greater.

• Pilot installation—Alder Dam was selected for a study of possible means for getting fingerlings safely past a high dam because its height (250 ft) is similar to the height of the proposed dam at Mossyrock on the Cowlitz.

Details of this pilot plant are shown in Fig. 1, and the installation itself is shown in Fig. 2.

In the fingerling pass now proposed for the Cowlitz River dams, the conduit from the fingerling-collecting pool above the dam would be 5 ft in diameter, and the collecting chamber would have a diameter of 12 ft instead of the 16-in. diameter of the pilot plant at Alder Dam.

Fingerlings coming down into this chamber would be prevented from leaving it by a screen across the lower end. Decompression of these fish would be accomplished by closing the intake valve and allowing the water to drain from the bottom at a predetermined rate. When the desired water level has been achieved, the circulating valve would be closed and the fish discharged to tailwater below the dam.

• Alternate proposal—An alternate method for getting fish down past the Cowlitz dams was recommended to the Tacoma authorities by L. F. Harza, one of the city's consulting engineers, but was not made part of the application for a power permit. The principal details are shown in Fig. 3.

Screens in front of the power intakes are made V-shaped to reduce the velocity through them so that small fish will not be held against the screens by water pressure. A velocity greater than one foot per second through a screen will hold fish against it, ultimately clogging the screen and killing the fish.

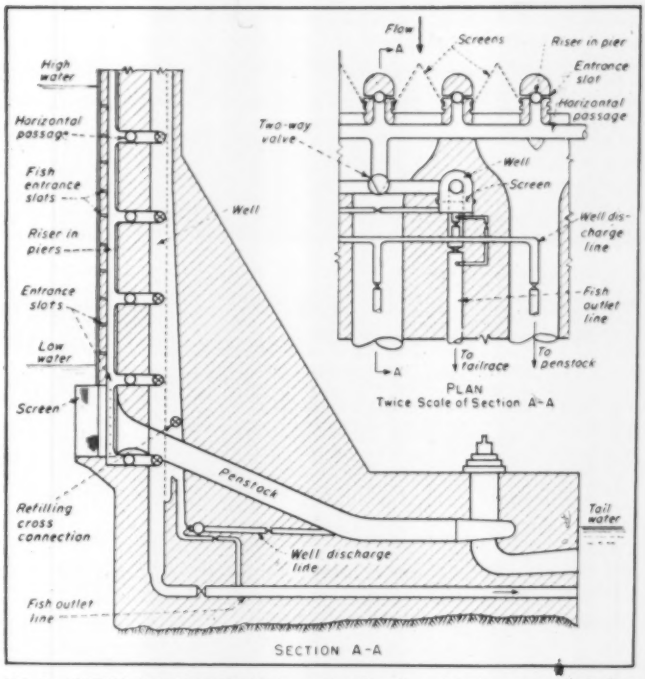


Fig. 3. ALTERNATE PROPOSAL for getting fingerlings downstream past high dams on the Cowlitz River without injury.

Slanting screens also will result in a flow along the face of the screen toward the fish intake slots, which lead to the fish passages within the dam and ultimately to the fish wells or locking chambers.

Under this plan there also would be many entrance slots in the dam at points away from the power intakes through which water would be flowing into the locking chambers.

An important element of these locking chambers is the vertical screen which keeps the fish on the upstream side of each well. Water coming through the entrance slots passes through this screen at low velocity and goes down into the penstocks through the well discharge line. Thus it is not lost for power generation.

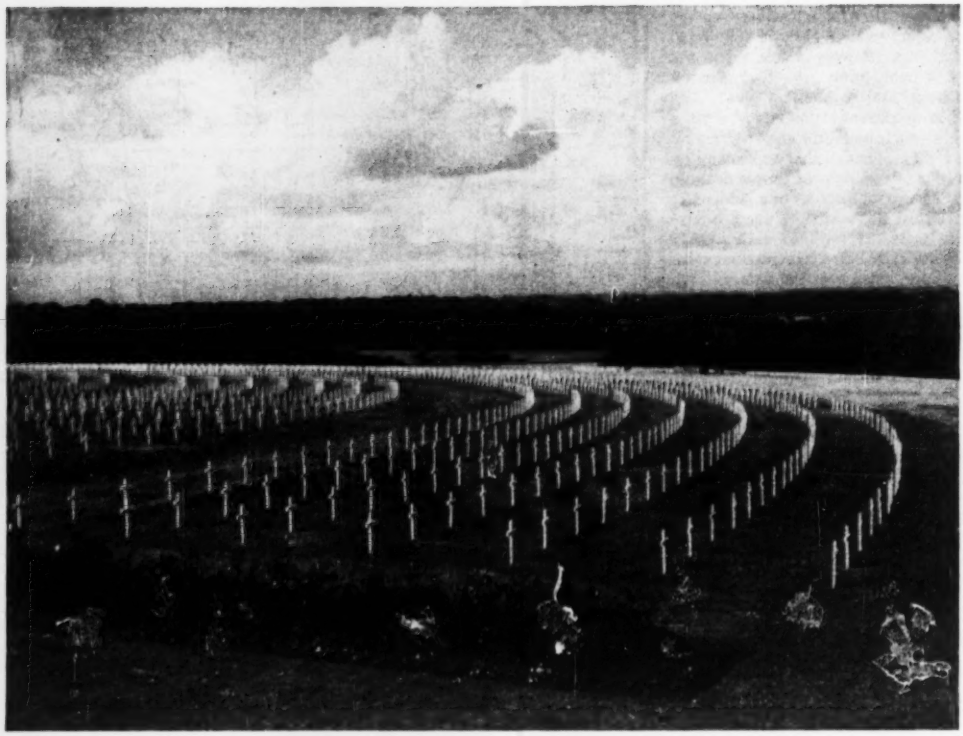
When a large number of fish have been collected above this screen, the fish outlet line is opened and the well discharge line is closed. The only water lost with this arrangement would be that discharged with the fish as the wells are emptied at a rate that will not injure the fish.

• Salmon habits studied—These two proposals for the safe handling of fingerlings are the result of intensive studies of the fish problem under the leadership of Commissioner Erdahl (in charge of public utilities) and Frank Ward, superintendent of Tacoma Light Division.

Participating were W. L. Strunk, professor of biology at Pacific Lutheran College, Carl L. Hubbs, professor of biology at Scripps Institution of Oceanography and the Harza Engineering Company of Chicago. The studies were carried beyond the development of facilities for getting fish past dams to include the habits of all fish that breed in the Cowlitz River as well as in its smallest tributary streams.

As a result of the latter study, new suitable spawning areas have been found that now cannot be reached by spawning salmon because of falls that cannot be negotiated by up-bound fish.

Several of these spawning areas will be made accessible by the higher water level in the lakes to be formed by the proposed dams. Consequently, it is believed that with proper transplanting of fish to the new spawning grounds the fish life in the Cowlitz valley can be greatly increased, rather than diminished, by the proposed dams.



CONCENTRIC CIRCLE PATTERN of crosses in the American military cemetery at Cambridge, England.

Battlefield cemeteries get new marble headstones

THERE IS no need for those with war dead buried in Europe, North Africa or the Philippines to view with alarm (as many newspaper editorials did) the recent revelation that the temporary wooden crosses in the cemetery in Honolulu were being replaced with permanent flat slab markers instead of upright crosses. The reason is that this was a special case of a single Army cemetery, and has no bearing on the 14 battle-area cemeteries under the jurisdiction of the American Battle Monuments Commission.

In these cemeteries all the permanent headstones will be upright crosses, or (in the case of Jewish graves) Star of David markers. In round numbers, the Honolulu cemetery contains only 13,000 graves whereas there are 92,000 in the ABMC cemeteries—60,000 at 10 locations in Northwest Europe, 12,000 at 2 locations in Italy, 3,000 in a cemetery at Carthage in Tunisia and 17,000 in a single cemetery in Manila.

Actually there are few government agencies that approach their assigned tasks with the thoughtful care and exactitude of the American Battle Monuments Commission. It developed and has continuously maintained the beautiful cemeteries for the World War I dead, and is now engaged in a similar operation for those of the last war. The work is directed from the Commission's office in Washington through three overseas offices at Paris, Rome and Manila.

The World War II cemeteries were originally laid out by the War Department's American Graves Registration Command, which supervised the rough grading of the sites, the transfer of the bodies from 44 temporary battlefield plots and the marking of the graves with wooden markers. The work of the ABMC is to replace these markers with marble headstones, landscape the areas and, at some of them, to oversee the design and construction of monumental structures created by outstanding American architectural firms. An unusual amount of engineering and construction is required to assure the high standards of continuing beauty and orderliness desired for these cemeteries. And one of the most exacting of the tasks surprisingly enough is the installation of permanent marble headstones to replace the temporary wooden markers that stood at the head of every one of the 92,000 graves.

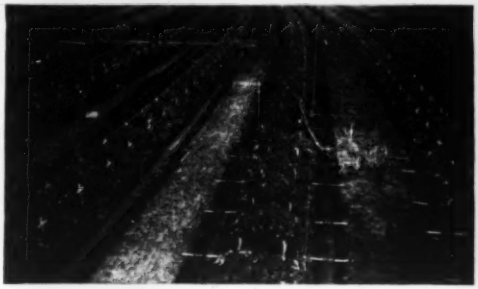
The headstones, made to a design with slightly tapered shafts conceived by the late Paul Cret of Philadelphia, are manufactured (for the European and North African cemeteries) from a material that resembles Carrara marble. It is quarried in a cave about 150 miles northwest of Venice in blocks about 6x3x3 ft in size, which are transported by cableway, rail and funicular to a plant at the nearby village of Laza. There gang saws, shaping saws and polishing tables are used to produce about 75 flawless specimens a day. The inscriptions are laid out by an automatic machine and carved

Steps in headstone installation at a U. S. cemetery in France.

1 PILES strung out, ready to drive

2 PILEDRIVER is moved on rails

3 SPRINKLER MAIN hung from beam



4 BEAM REINFORCING is placed ready for concreting

5 COMPLETED BEAMS, ready for marble markers

by pneumatic chisels. Each headstone is boxed separately, and the cost delivered runs a little less than $30 apiece.

• **Careful layouts**—Cemetery layouts vary with the topography and the nature of the surrounding terrain. As many as possible of the cemeteries are on the side of a hill so that they can be viewed from a distance. Also in 8 of 14 cemeteries the graves are laid out in curved lines to heighten the esthetic effect. The overall design is variously in the form of a semi-oval, Swiss cross, clover leaf or truncated isosceles triangle.

All layouts are surveyed and measured with extreme accuracy, and the erection of each headstone follows a procedure designed to maintain the geometric pattern permanently.

From the view point of topography, one of the most difficult problems was grading the area so that the tops of the headstones do not vary longitudinally nor laterally from a predetermined curve by more than ½ inch. This degree of accuracy was necessary since any headstone not within that tolerance would stand out immediately to the naked eye, destroying the feeling of orderliness.

• **Beams support headstones**—To insure a permanent foundation for these headstones, 116 miles of reinforced concrete beams were constructed. Built in trenches about 20 in. deep, the beams are 12 in. wide and 10¼ in. deep, beveled on top. At intervals of 2 meters (6 ft 7 in.) the height of the beam is increased to 16¼ in. to accommodate a socket for the headstones. In the base of this socket a bronze dowel of ⅜ in. diam is installed. Set over this dowel, the marble headstones are then grouted into position. Sufficient ground cover assures root space for grass over the beams.

Since the least deflection, failure or settlement of these beams would reflect in the alignment of the headstones, and since during the re-interment the soil on which they rest was twice disturbed, some system of supporting the beams had to be devised. After careful soil tests, it was decided that three different systems of support would be desirable to accommodate the nature and bearing capacity of the various soils encountered.

• **Piles support beams**—The first and most frequent solution was driving vertical piles to refusal on 4 meter centers—twice the spacing of the headstones. These piles are 8½ in. diam, of precast concrete. In areas of poorer soils or where the soil disturbance had occurred to considerable depth, batter piles were driven at the same interval as the vertical piles. The third solution, used when it was not feasible to drive piles, is a system of transverse beams. Laid on 4 meter centers these beams are similar to those supporting the headstones when piling is used.

• **Sprinkler systems**—As often as possible the sprinkler system for irrigation of the grass is installed at the same time as the beams so that the same ditch opening can be used for both. The mains are of cast iron, with 1½ in. diam galvanized distributors to the sprinkler heads. Swing joints are used in the vertical distributor risers to

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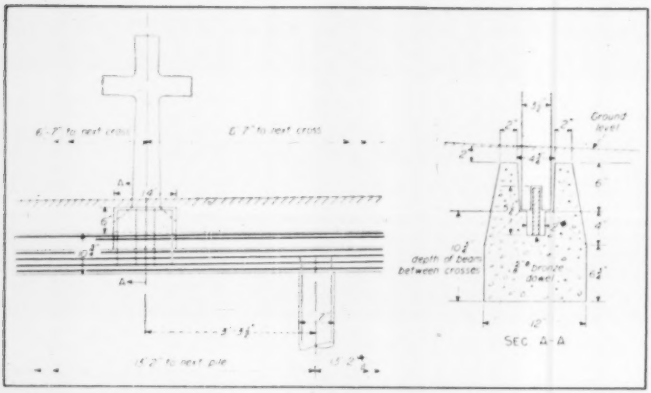


SUPPORT FOR MARBLE CROSSES consists of continuous beams on concrete piles.

Battlefield cemeteries . . .

the sprinkler heads to reduce any shock from lawn mowers. Concrete pads below the joints limit the downward movement.

The Paris office of ABMC, which administers the largest part of the program, is under the charge of Col. A. T. W. Moore, whose last previous assignment was a district engineer for the Corps of Engineers at Los Angeles, Cal. In charge of engineering is another Army engineer, Lt. Col. Joseph A. Crist. Brig. Gen. Thomas North is Secretary of ABMC, with headquarters in Washington, D. C.

Laboratory planned to avert disaster

EXPLOSION-PROOF devices and blow-out walls designed to protect lives and prevent damage to equipment used in medical research have been installed in the newly completed organic research laboratory of the Wm. S. Merrell Co. at Cincinnati, Ohio.

Outstanding features of the building are the outer walls—made of ¼-in. thick asbestos-cement panels loosely fastened to building columns. Should an explosion occur, the blast would throw the panels clear of the building, thus permitting gases to escape outward.

Additionally, all electrical wires and fixtures are enclosed in explosion-proof casings—steel or ½-in. thick glass—to prevent sparks from starting fires or explosions. Non-sparking metal (phosphorus bronze) was used in the moving parts of the air-handling equipment. Floors are made of a cement that will not spark if a worker happens to drop a piece of metal or wear shoes with steel nails in the soles.

U-shaped, the one-story structure is 38 ft wide at the base, with wings 30 ft long. The wings, containing experimental drug-production booths, are isolated by a heavy concrete wall and fire doors from the administrative building, which houses medical drugs, raw materials, finished products, and service machinery.

DESIGNED to blow out in case of explosion these walls are only one of the safety features for a lab building at Cincinnati, Ohio.

• **Building details**—The drug-production booths with blow-out exterior walls are placed in groups of six in two separate wings to minimize damage from an explosion. After an explosion in one wing, production could still continue in the other. Each booth is 5 ft wide and 5 ft deep. Steam, compressed air, vacuum, distilled water and electricity are supplied to all working areas.

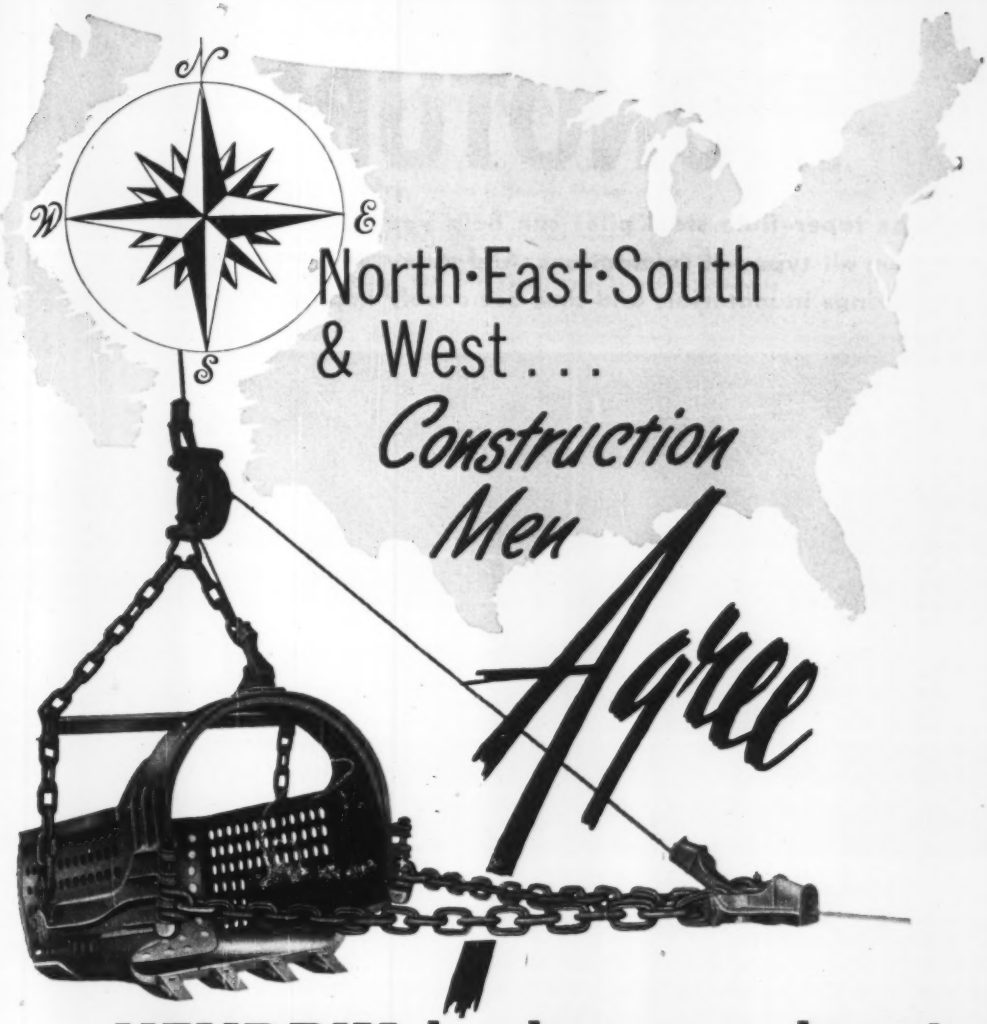
• **Special air equipment**—Air-handling equipment seals the entrance to each booth with a blanket of filtered, temperature-controlled air. More than 1,200,000 cu ft of air are circulated every hour, quickly sweeping away all traces of obnoxious or explosive vapors and preventing any cross-contamination of chemicals from one booth to the other.

Each booth has its own exhaust fan, and the ventilating system is arranged so that required air is delivered to all booths in use. Automatically operated dampers insure a constant air supply to each cubicle, no matter how many are being used.

In addition to the regular air-handling equipment, each booth has its own 8-in. flexible hose connected to the exhaust manifold to provide additional localized suction for special applications or particularly hazardous operations.

Other safety features installed include: Emergency showers and an eye wash fountain just inside the administration area.

The laboratory and an adjoining main building were designed by Allen & Van Campen, chemists, and Rowland Kleine, engineer for Merrell. Consulting engineer for the structure was Harold N. Hermann & Associates, of Cincinnati.



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Monotube Foundation Piles

How to finance sewage disposal

The panel: Francis S. Friel, Albright & Friel, Philadelphia
Samuel A. Greeley, Greeley & Hansen, Chicago
Thomas M. Niles, Greeley & Hansen, Chicago
George J. Schroepfer, University of Minnesota
George P. Steinmetz, State Public Service Commission, Wisconsin
Moderator: Edward J. Cleary, Ohio River Valley, Water Sanitation Commission

The American Society of Civil Engineers, the American Bar Association and other cooperating groups have recently set forth the fundamentals of fair charges for water and sewage works (ENR Nov. 22 p 44). And at its recent convention in New York, ASCE's Sanitary Engineering Division staged a panel discussion of the very vital subject. It was unrehearsed, but not unplanned. The following transcript, necessarily abridged, presents expressed thoughts of the panel members, plus discussion contributed from the floor.—**Editor.**

CLEARY: It is not by mere chance that this particular group of men has been selected to discuss this vital problem. Each of them has been engrossed with financing questions since 1948 as a representative of the ASCE on a joint committee with the American Bar Association and six other groups in the development of a report entitled "Fundamental Considerations in Rates and Rate Structures for Water and Sewage Works." This report which is probably the finest treatise ever written on the subject is now available.

The first question that we have selected for our panel goes something like this. Is there a preferred or best way for municipalities to finance sewage disposal improvements?

GREELEY: I think there is a best way. That best way was stated as a sort of fundamental principle by the joint group to which the moderator has referred.

It states that "the needed total annual revenue of a water or sewage works shall be contributed by users and nonusers and properties for whose use, need and benefit the facilities of the works are provided, approximately in proportion to the cost of providing the use and benefits of the works."

I think that means that those who use the things which benefit from the water or sewage works should pay approximately to the extent they have caused the expenditure for the facilities which they wanted.

STEINMETZ: I think Mr. Greeley's answer is the one single proper answer. Of course, the specific ways in which that may be accomplished are: General obligation bonds, special assessment bonds, revenue bonds, and another quite important source of financing, the financing from current revenues, particularly the funds accumulated to cover depreciation.

NILES: I have one general thought: whatever method of financing is adopted, we should keep in mind the desirability that the present users and beneficiaries do not carry too much of the load for future generations.

What's fair?

CLEARY: In the joint report it is stated that the exclusive use of any one method of financing will result in inequities or unfairness. I think we ought to explore that statement. George Schroepfer, would you like to start the discussion?

SCHROEPFER: To approach fairness to all classes of users and property in allocating the cost of an intercepting sewer, for example, ground water infiltration, surface runoff and the provision that is made for the future are proper charges on property, and the contribution of sewage and industrial wastes is a proper charge on the user. It is possible in a particular project to go through and first allocate those costs to users and properties and then work up a rate schedule to distribute those allocations.

If all of the charge is put on a property basis, certain properties pay considerably more than their fair share—home owners, for instance. If it is all put on a use basis, the (wet) industries pay far more than their fair share. The basic thing is allocation to users and property by a fair method.

GREELEY: Development of the joint report was affected right along by the more or less obvious idea that it is unfair to charge the needed total annual revenue entirely to users or entirely to property.

For instance, a community having a single large industry raised its total annual revenue entirely on the basis of taxes. As I recall it, the contribution of that industry was about $6,000 a year. If they had been charged on a use basis as well as on a property basis, reasonably and fairly apportioned, they would have paid somewhat under $40,000 a year.

Friel: A three-pronged method

In another case, a somewhat similar municipality having one large industry raised its entire total revenue on the basis of use. The large industry paid close to $60,000 a year, whereas, a fair charge would have been in the neighborhood of $40,000 a year.

There is one other minor point with reference to raising the needed annual revenue by more than one method. It has a tendency to even out the revenue so that in times of drought, for instance, the use of water is curtailed and all of the revenue based on water use would be reduced, whereas some of it coming from property tends to even the amount from year to year. Vice versa, when times are bad the part of the revenue derived from use charges tends to steady the income.

What's expensive?

CLEARY: Tom, you are jumping back and forth in your chair there.

Do you have something to add?

NILES: No, I have nothing to add, but I would like to throw in a question.

We talk of "how to pay for new plants under today's high costs." I am not sure that today's costs are high in real costs. Construction costs are up, costs of everything else are up, too. Present interest rates are relatively low. Wages and salaries are higher today for treatment plant personnel, but wages and salaries generally are higher. Another item, electric power, I believe, generally costs less in actual dollars today than it ever did before.

So chances are that in real cost sewage treatment costs today are low rather than high.

CLEARY: Would anybody like to question the panel at this point?

M. H. KLEGERMAN (New York): Mr. Niles, while true costs perhaps are not much higher, the limitation on financing in many municipalities is still governed by bonded debt, and the valuation of the real estate in these municipalities, which is the basis for bonded debt, has not increased in proportion to our inflation. There is that deterrent perhaps to proceeding with construction of this kind notwithstanding the fact that real costs are not any higher.

FRIEL: I would like to add that while our total overall cost may not be higher, when we take into consideration the value of the dollar today, the citizens of the municipality do not look at the picture from that angle. They are still thinking in terms of the sewer rental they had to pay ten years ago, and they are making the comparison on that basis.

Sewer rentals in those days averaged $15 and $25, generally speaking. Today if we build a new sewerage system starting from scratch and a new sewage treatment plant, those same sewer rentals will be up around $35 and $50.

NILES: That is the way people look at it, but do they stop buying automobiles because they cost two and a half times as much. Why shouldn't the people have enough sense to realize that a dollar isn't worth a dollar any more, in sewage treatment as well as anything else?

I am not in entire agreement with Mr. Klegerman who said that assessed valuations have not gone up. Maybe that is true in some places, but I know other places where they follow the assessment adjustments very carefully, make a new assessment every year based on records of real estate transactions. I believe that the tax rates can keep pace with the rising prices.

STEINMETZ: May I add a word there? I think that the longer a necessary construction project is put off, the more it will cost. We have not reached the top yet.

CLEARY: That sort of leads us into the next question. Under conditions existing today, would there be any preference in methods of financing?

STEINMETZ: Well, yes; I think in many cases there are, particularly where general obligation bonds are pretty close to a constitutional limit or where the funds available from such general obligation bonds are needed for other municipal projects which will not produce revenue, such as schools. Under those circumstances probably assessment bonds and revenue bonds are the preferred methods of financing.

SCHROEPFER: Isn't it true that revenue bonds bear an interest rate generally a half percent to 1 percent more than general obligation bonds?

FRIEL: I believe your general obligation bonds are running at the present time about one-half of 1 percent less than the revenue bonds.

What's needed?

CLEARY: I think the problem that we find most frequently addressed to regulatory agencies is: We are not in a position to finance expensive sewage disposal methods. I am wondering if there is any yardstick by which we might be able to determine the ability of a community to finance sewage disposal.

GREELEY: I believe that if there is fairness in the distribution of the cost of the project, the ability of a community to finance sewage disposal will be very much better, more easily reached.

I qualify that in an odd sort of way, by saying that the "tolerable" need of the project should determine the ability of the community to finance. If there were a real need, a need that was caused by something that was intolerable, the ability to finance would be found.

STEINMETZ: Yes, the necessity for sewage treatment is a thing that requires primary consideration; where it must be installed, the cost must be borne. Perhaps the costs can be kept down in the small installation, for the small community, by installing the simplest type of treatment plant which can be expanded later as financial conditions better themselves.

FRIEL: I believe we have not satisfactorily answered an earlier question posed, which was, under conditions existing today, would there be any preference in methods of financing. I should like to see the panel give this audience something more tangible than we have given them up to date.

I think this problem of financing sewerage is divided into two parts. First, you have to finance the sewage treatment plant itself. If you have to finance a sewage treatment plant and a sewerage system, the whole works, you have another problem.

If we have to finance the treatment works alone or if we have to enlarge an existing plant, then the problem isn't too great. You can usually finance that construction with either the issuance of general obligation bonds (if the debt limitations of the municipality are right) or you can do it by revenue bonds. The modern trend today is to do it by revenue

Niles: Uncle Sam isn't worried

Greeley: There is a fair way

bonds. The annual rental that must be imposed will not be too great.

But if we get to the problem of having to finance a sewage treatment works plus a sewer system, cost will probably be double as far as the annual carrying charge is concerned. Debt service plus operation plus factor of safety will cause it to be double.

Then you must devise ways and means of doing something beyond the general obligation bond or the revenue bond. That might be accomplished (1) by assessing the cost of the sewers and possibly the sewage treatment plant against taxation. Collect from tax money sufficient to pay the carrying charge on those improvements. Then (2) assess the cost of the individual sewer line in front of an individual house against that property as a lump sum assessment. The carrying charges for operation and the surplus necessary (3) might be borne by sewer rental.

So there you come out with a three-pronged method. What you are doing is reducing your annual rental by paying a lump sum down payment, your assessment, and I believe that is the proper way to do it today.

SCHROEPFER: When you use revenue bond financing, Francis, you tend to put on the users the entire cost of the system, the debt service plus the operation and maintenance cost; that is a thing to be concerned about. But you are going to take care of it by putting the sewer system on assessment bonds and general obligation bonds probably.

FRIEL: Assessment bonds.

SCHROEPFER: But it does lead you away from fairness when you put it all on the user.

GREELEY: I think that the two viewpoints presented by Mr. Friel and Mr. Schroepfer can be reconciled along this line—Mr. Friel states a three-pronged method of financing, as he terms it, one of which would be some form of assessment; the second would be general obligation bonds; and the third would be revenue bonds. To that, of course, would have to be added the operating costs.

He doesn't say how much of the burden each of these three prongs should carry. I think that is a question that has to be developed as a technique in application of the fundamental principal, so that each of the prongs carries what is as close to fairness as can be worked out in accordance with this general fundamental principal. If that is done, you have brought the two thoughts together.

What's a tax?

CLEARY: As I said earlier, we are entertaining questions from the floor if anyone wishes to raise any.

(*Speaking from the floor*)

CHARLES A. EMERSON (New York): Mr. Moderator, during the past few weeks, I have been having tussels with a number of bond attorneys. One of them took the attitude that the pronouncement of the Superior Court in one of our nearby states some years ago was to the effect that all of these were but thinly veiled subterfuges to raise taxes, and that the real criterion, whether it be ad valorem taxes or revenue bonds, is the ability of that municipality to pay in the opinion of the bankers.

The simple bald question is, how much can you raise taxes, because that is what John Q. Public looks at. He adds his general tax bill, his water bill, his sewer rental bill together. How are we going to raise taxes enough to cover these expensive construction and operating costs? You have got to throw it all into the pot. How can you make the public pay, as viewed by the bankers who buy the bonds?

GREELEY: The highest court in New York State, in connection with the Buffalo case, ruled that the two-part rate, one part based on use, the other part based on property, was not a tax; and they have been going along on that basis for the last twelve or fourteen years.

It seems to me one of the difficulties has been failure of those of us who in the past explained the matter to the courts.

We should not have had the great confusion which seems to be apparent now in rates and rate structures on water and sewage works. The ruling of the neighboring court is not necessarily the only ruling on that particular point.

SCHROEPFER: It occurred to me that Mr. Emerson was considering the problem of relieving the tax load; you realize that 80 percent of the communities finance all of their sewerage by charges on property.

Steinmetz: Cost can be kept down

Cleary: An academic question

NILES: I have some figures based on an assumed $50 per capita for the installation initial cost of intercepting sewers and sewage treatment works. Carrying charges would be perhaps in the neighborhood of 6 percent or maybe $3 per capita per year. We will assume that the operating costs are another $3 per capita per year, or a total of $6. For a family of five, that would be $30 per year that they would be paying.

What kind of money is this? Probably the family automobile cost from ten to twenty times that amount every year.

At the $6 per capita, the total for every man, woman and child in the United States is around one billion dollars per year, or about one-fifth of the latest increase in Federal taxes.

We say, what is the yardstick? Well, I would like to ask, what yardstick, if any, has been used to determine the ability of a community to pay 11 to 12 percent higher federal taxes, which increase alone is probably around five times the cost of sewage treatment?

CLEARY: That is just an academic question.

NILES: Yes, just an academic question. We are worred about the ability to pay. The bankers are worried about the ability to pay. But Uncle Sam isn't worried about the ability to pay.

FROM AUDIENCE: No, he gets there first.

KLEGERMAN: That is a fine analysis, Tom, but there is just one difference. This tax business is universal, and much of it comes from the rich and very little comes from the poor. But on sewage treatment each has to pay his own way.

NILES: I am old-fashioned enough

to think that the poor man pays his share of the taxes regardless of whether he pays them directly or pays them when he buys a pair of shoes.

GREELEY: Mr. Moderator, I think if Mr. Emerson and Mr. Kiegerman compute a rate schedule on the basis of use, make it a two-part rate schedule in which fair allotment is made to use and property, they would find that the burden on the small user would be very considerably less than it is in terms of the older procedures.

CLEARY: What can we do in those small communities where the installation of sewage disposal facilities involves huge per capita expenditures; in other words, is there any way to offset the penalty for smallness in size?

STEINMETZ: Start taking care of sewage disposal in a small way.

GREELEY: Where the raising of the money is difficult for the community, we discussed one point a good deal in joint group meetings and that was the allocation of a certain part of the needed total annual revenue as a charge to the government, to the local government. There is tangible support for that. The community gains. They have a stake in the project as a whole and perhaps might go so far as to underwrite delinquent payments. That is pretty well illustrated, I think, in the case of the Washington Suburban Sanitary District.

What's ahead?

(Speaking from the floor)

J. E. O'BRIEN (New York): If you are getting into the question of how to finance the cost of sewage treatment by communities in which there is some doubt as to their economic ability to support that service, there is this thought which some day may be developed: Sewage treatment is something that the average property owner pays for but perhaps gets little or no direct benefit from himself. It very frequently happens that the failure to have sewage treatment does not directly affect the property of the person whose sewage produced the difficulty. That is one of the things that we are buying in this life and which we don't directly use.

The person who pays for sewage treatment may be miles away from the sewage treatment plant and perhaps never know whether the sewage treatment plant operates satisfactorily or not. That might lead some day to the concept that sewage treatment is one of those governmental services, such for example as education, which has to be supported by a general charge without direct relationship to the person causing it.

As we all know, whether you have one child or no children, you pay the same for the cost of education, and I presume the justification for that lies in the philosophy that an educated individual pays back to the community the value of his education after he becomes an earning member of society and therefore society is merely making an investment in him which is paid back later on. Perhaps we will some day have to look at sewage treatment as that type of service.

What's unwanted?

CLEARY: There is one other question. If federal grants-in-aid or loans were made available to municipalities for sewage disposal improvements how would you decide who is to get what?

GREELEY: My own feeling is that there shouldn't be any federal grants to local governmental agencies unless and except in times of emergency when the country as a whole needs that kind of thing.

FRIEL: Possibly these grants may come from the states and not from the federal government although, personally, I am not in favor of grants from either the states or federal government.

SCHROEPFER: I have a numerical solution. A hundred per cent of the communities should get zero per cent.

STEINMETZ: I know of no way that you could encourage the communities which have not constructed sewage disposal facilities to delay and ask for extensions of time any better than to hold out the hope of federal money some time in the future.

NILES: It seems to me grossly unfair to the community which has gone ahead and paid for its own pollution correction to have their upstream neighbor get some free government money that gives them a free ride.

CLEARY: I would say that the consensus of the panel leaders is that federal aid is not favored.

We have come to the end of our time allotment. I would like to thank each member of the panel—Mr. Greeley, Mr. Schroepfer, Mr. Friel, Mr. Steinmetz, and Mr. Niles.

Court denies land for disposal plant

San Jose, Calif.—The trial judge in this city's condemnation suit to get 2,500 acres of land for oxidation ponds for a projected sewage disposal system (ENR Nov. 22, p. 47) has ruled against the city, but "without prejudice."

The decision means new delays in construction of a sewage disposal system for San Jose—the last major city in the San Francisco Bay area to be dumping untreated sewage into the Bay.

The disposal problem has been in controversy since 1946, when the city received a report recommending the oxidation pond scheme.

In ordering the judgment for the defendants, the Superior Court judge said that he had deduced from evidence in nearly eight weeks of trial that the planned oxidation ponds, which would be among the largest such treatment ponds ever used, were in the nature of an experiment.

He did not believe, he said, that when voters approved a $3,900,000 bond issue two years ago for a sewage disposal system that they did so to finance "an experiment."

Important in his decision, he said, was that evidence had shown that while other successfully operated oxidation ponds had been shallow and of uniform depth, San Jose's would be of varying depths from 20 to 40 ft.

The 45-mgd San Jose disposal system, designed by C. G. Hyde and G. L. Sullivan, consulting engineers associated for the project, calls for secondary treatment in five oxidation ponds, covering 2,000 acres, and involving recirculation of water through four pumps at a rate of 280 mgd.

The judge's decision followed his discharge of an advisory jury, which had deadlocked at 7-5 in favor of the city.

Principal defendant in the condemnation case was Leslie Salt Co., which owns 1,800 acres of the land.

The defendants contended that the oxidation plan would not work, and that secondary treatment would be unnecessary if their alternate plan for routing primarily treated sewage into San Francisco Bay was adopted.

The decision in effect remanded the case to the city council, giving it the opportunity to refile the same suit or consider revision of plans calling for the oxidation pond system.

The court commented that it believed that if the city council had heard all the evidence that had been produced in court, rather than the lesser information presented at council meetings, that it would not have endorsed the oxidation method.

No decision has been made on what new action the council will take in the case, but city spokesmen pointed out that there was strong local feeling that the oxidation pond method was the only satisfactory way of handling the disposal problem in the city.

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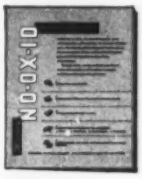

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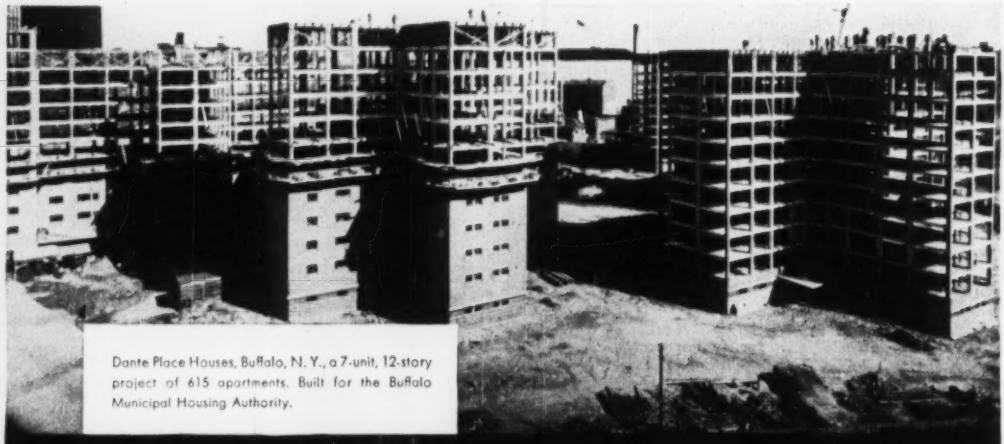

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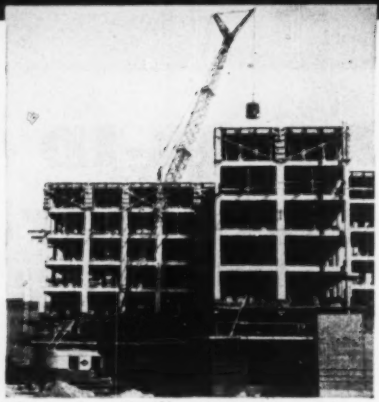

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REVIEWS OF NEW BOOKS

Soil studies simplified

INTRODUCTORY SOIL MECHANICS AND FOUNDATIONS—By George B. Sowers and George F. Sowers. 284 pp. The Macmillan Co., New York 11, and London. $4.75.

Father and son have collaborated in preparing this text, which undertakes to present the essentials of soil mechanics in simple, understandable form. When the son began teaching soil mechanics at Georgia Institute of Technology he concluded that none of the available texts was written at a level suitable for young engineering students. Hence he began to prepare a series of lectures for his students and appealed to his father, a practicing consultant who has specialized in foundation work, for practical examples with which to give concrete form to the theories he was teaching.

This book is the result of that combination of experience. It has condensed what the authors consider to be the essentials of soil mechanics into considerably less space than is given to the subject in earlier texts written to meet the same need.

A biased approach

MUDDY WATERS: The Army Engineers and the Nation's Rivers—By Arthur Maass, Assistant Professor, Harvard University, 306 pp. Harvard University Press, Cambridge, Mass. $4.75.

Because this book is presented to the public as one of the Harvard Political Studies, the reader may expect an objective and dispassionate study. There is neither objectivity nor lack of passion in the book's title "Muddy Waters", or in the foreword by Harold Ickes. Nor is objectivity a particular characteristic of the text itself. That will not be apparent to the casual reader, however, because the author has quoted extensively from public documents that support his criticism of the way the Army Engineers have handled river work but has not quoted from other documents that would refute his argument.

The outstanding example of this is found in what Mr. Maass says about the need for studying river systems as a whole. He criticizes the Army Engineers for their "traditional inclination to consider individual water projects *in vacuo*" during the early years of this century and for not having "modified their planning procedure at all" between the passage of the Water Power Act in 1920 and 1934.

As a matter of fact, it was during that period that the Army Engineers inaugurated the first comprehensive studies ever undertaken in this country looking toward the complete development of each major river system for navigation, power, flood-control and irrigation. That work was authorized by the River and Harbor Act of 1925, and the reports prepared under it have since become known as the "308 Reports" after the number of the House document in which the act was published.

Nearly 200 of these reports were prepared between 1927 and 1937. The 308 Report on the Tennessee River formed the basis on which the Tennessee Valley Authority began its operations.

Mr. Maass makes no mention of these reports in the body of his text and gives the Corps no credit for its pioneering work in compiling them, yet he knew of them because he included a footnote that refers to them and he served as a consultant to the Hoover Commission in its study of the civil functions of the Army Engineers.

Mr. Maass also served as a consultant to the Department of the Interior and the National Resources Planning Board. Reading his book makes clear the fact that his basic difference with the Army Engineers is the same difference that caused so much contention between Congress and President Franklin D. Roosevelt and his close personal advisers, including Secretary Ickes, who wrote the foreword to this book.

The Army Engineers still look upon Congress as *the* legislative and policy forming agency for the nation. Mr. Maass appears to belong to the new school that believes that national policies on such matters as power development, when formulated within the executive branch of the government, do not need Congressional approval. Because the Army Engineers have had the temerity to stand out against such efforts to by-pass Congress, Mr. Maass says they lack administrative responsibility and attempt to bypass executive authority.

As an example he sets forth a power policy that he says is a consensus of proposals of Presidents Roosevelt and Truman, the National Resources Planning Board, Department of the Interior and Federal Power Commission. These sources, he says, hold that a sound power policy should, to a large extent, require federal development of hydro power, that the government should integrate its own hydro facilities by construction of transmission lines, and that it should build transmission lines to major load centers in order to be able to sell power at wholesale at these centers to prevent monopolization of federally produced power by limited groups. Although Congress has never approved such a policy, Mr. Maass condemns the Corps of Engineers for opposing the administration's efforts to put it into effect on projects under Army Engineer jurisdiction. The standards that they proposed for rate making, he says, "gave little emphasis to any social or economic objectives that might be obtained."

Nearly one-third of the book is devoted to a detailed review of the controversy between the Army Engineers and the Bureau of Reclamation over which agency should build a multiple-purpose reservoir on the Kings River in California. That also appears to be a prejudiced statement, setting forth only the side of the Bureau of Reclamation in an inter-departmental squabble involving issues extending well beyond the Kings River.

The system under which navigation and flood-control projects are processed by the Army Engineers from inception to authorization by Congress is far from perfect. And the Army Engineers may be open to criticism for having yielded too often to pressure from local groups or from Congressmen. This is the theme that the book presents, but it is not the story of what is wrong with our river development program.

PHS on public health

ENVIRONMENT AND HEALTH—Published by the Public Health Service, Federal Security Agency, 152 pp. Obtainable from Superintendent of Documents, Washington 25, D. C. 75c.

Written in simple terms with a popular appeal, this well illustrated volume is a concise statement of the problems and progress in promoting public health. It would be ideal if all thinking citizens could be brought to read it. Certainly students of civil engineering should be instructed to do so. Even those actively engaged in public health engineering will find something within the covers to reward them for the short reading time this volume requires.

In a secondary sense, the volume tells the story of PHS activities in environmental health. As a team product, it utilized talents of a large segment of the service staff. Thus the text is more than a review of progress to date and of current problems; it also tells how PHS's environmental health services have shared and are sharing in both.

In our changing environment, the

text points out, PHS must carry on, stimulate and foster research; support work of local health agencies.

Suggestions and comments are made as follows: on drinking water, PHS drinking water standards are recommended for all domestic supplies. On pollution abatement, uniform state legislation and interstate cooperation are urged. On air pollution, no federal agency is as yet authorized to coordinate control. On pest control, cleanliness, construction and chemistry will win.

Basic irrigation data

IRRIGATION ENGINEERING, VOLUME I, AGRICULTURAL AND HYDROLOGICAL PHASES—by Ivan E. Houk. 545 pp. John Wiley & Sons, New York 16. $9.00.

A thorough, up-to-date text and reference book on irrigation has been badly needed for some time. The two volume set by Houk, of which only the first has been published, appears to have the potential to fill that need.

Volume I deals with the agricultural and hydrological phases of irrigation engineering. Volume II apparently will cover project planning and structures.

Included in the subject matter of the first volume are the following: soils, soil-moisture movements, runoff, evaporation, water requirements, losses, water quality, and irrigation procedures.

Coverage of these subjects is thorough. Thus, the engineer using this book will have available material that is basic in irrigation work. But until Volume II is published, the application of these factors to actual layout and design of irrigation systems is not available. In other words, Volume I is complete insofar as it goes—it obviously does not cover many essential phases of irrigation engineering. If those phases are handled as well in Volume II as the matters included in Volume I have been, the set will be a worthwhile addition to irrigation literature.

British water manual

MANUAL OF BRITISH WATER SUPPLY PRACTICE—Compiled by the Institute of Water Engineers. 910 pp. W. Heffer & Sons, Cambridge, England. Obtainable through the American Water Works Association, 521 5th Ave., New York 17, N. Y. $7.50.

Over a hundred waterworks specialists joined in the preparation of this truly comprehensive manual of British practice. In 25 chapters it runs the complete gamut from hydrology to organization and management, including: reservoirs, river works, wells, pumping, distribution, treatment, law, finance, and others.

The volume is claimed by its publishers to be of a scale never before attempted. Doubtless that is true of Great Britain, but volumes of the same nature have been developed over the years in this country—albeit in less detail. There was the pioneering work of N. M. Baker in editing a "Manual of American Water Works" as early as 1888. "Water Works Practice," a manual of the American Water Works Association, was published in 1925.

The reader should find the answers to most questions relating to British waterworks practice in this volume—if not in the chapters themselves, then surely through their extensive bibliographies.

Beyond the yield point

THEORY OF PERFECTLY PLASTIC SOLIDS—By William Prager and Philip G. Hodge, Jr. 264 pp. John Wiley & Sons, New York 16; Chapman & Hall, London. $5.50.

What happens when a structural member is so heavily loaded that parts of it are stressed beyond the yield point? This is the question that the authors seek to answer with the aid of the theory of plasticity.

In the light of present knowledge, however, an exact solution for most types of loaded members appears impossible. Therefore, the authors make certain simplifying assumptions, setting up what they call an ideally plastic material, and determine stress-strain distributions in a member in much the same manner as in the theory of elasticity.

According to their definition, a perfectly plastic material is one that does not exhibit work hardening, but flows plastically under constant stress.

Simplicity of mathematics is the key to selection of a yield condition, defining the loading that starts plastic flow, as well as choice of a stress-strain relationship for the plastic range.

With these assumptions, a theory of plasticity is set up, which presumably sheds light on the behavior of actual materials. The authors use the theory to study the elastic-plastic behavior of simple trusses, beams, twisted bars and thick-walled circular tubes subjected to internal pressure.

Notes on Pamphlets, Reprints and Educational Films

• **Prestressed concrete construction**—Recommendations for good practices in the design and construction of prestressed concrete members are given in a 31-page booklet, "First Report on Prestressed Concrete." A notation system for design calculations and notes on behavior of prestressed concrete under load are included in appendixes. When more experience has been gained, a revised report will be issued. Copies of the first report may be obtained for 3s 6d from the Institution of Structural Engineers, 11 Upper Belgrave St., London SW 1, England.

New Engineering Books

ADVANCED ENGINEERING MATHEMATICS—C. R. Wylie, Jr. 640 pp. McGraw-Hill Book Co., New York 36, Toronto and London. $7.50.

THE ECONOMIC DESIGN OF RECTANGULAR REINFORCED CONCRETE SECTIONS—By T. P. O'Sullivan. 75 pp. Sir Isaac Pitman & Sons, London and Pitman Publishing Corp., New York 19. $2.75.

INTRODUCTION TO LIGHTING—By Howard M. Sharp. 337 pp. Prentice-Hall, New York 11. $5.00.

INCENTIVE MANAGEMENT—By James F. Lincoln. 280 pp. The Lincoln Electric Company Cleveland 17, Ohio. $1.00.

PRACTICAL PHOTOGRAMMETRY—By H. Oakley Sharp. 229 pp. The Macmillan Co., New York 11, N. Y. $3.75.

THE GRINDING WHEEL—By Kenneth B. Lewis. 409 pp. The Grinding Wheel Institute, Box 64, Greendale, Mass. $3.50.

Reports and Pamphlets

INDUSTRIAL PROJECT ESTIMATOR'S GUIDE—By W. A. Thomas. 2742 Philadelphia Avenue, Pittsburgh 16, Pa. $2.00.

STUDIES OF COMPRESSIVE STRESS DISTRIBUTION IN SIMPLY REINFORCED CONCRETE NEAR THE POINT OF FAILURE—Bulletin No. 144. Engineering Experiment Station. The Ohio State University, Columbus 10, Ohio. 50¢.

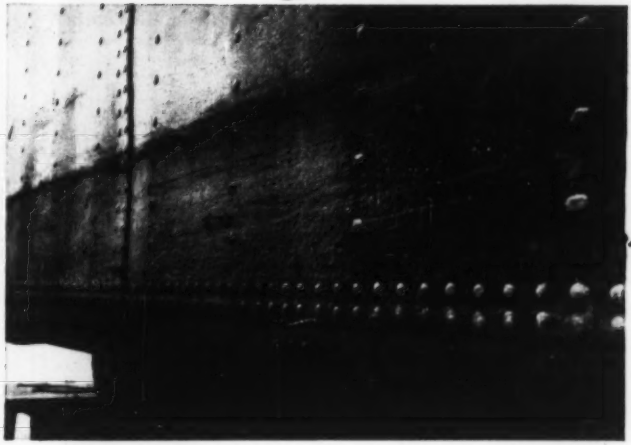
STATE BUILDING CONSTRUCTION CODE, APPLICABLE TO ONE- AND TWO-FAMILY DWELLINGS—New York State Building Code Commission, 1740 Broadway, New York 19, New York.

PROCEEDINGS OF THE TWELFTH ANNUAL HIGHWAY ENGINEERING CONFERENCE—Bulletin No. 52 of the Utah Engineering Experiment Station, Department of Civil Engineering. University of Utah, Salt Lake City.

A LITERAL INTERPRETATION OF REGULATION X—(Revised). Roy Wenzlick & Co., 706 Chestnut St., St. Louis 1, Mo. $1.00.

BUILDING CODES AND CONSTRUCTION PROGRESS—Chamber of Commerce of the United States, Washington 6, D. C. 50¢.

NO CORROSION



Photograph taken in July, 1950, shows coal barge, "Walling", which was zinc sprayed in 1933. Work done by Metalweld, Inc., Philadelphia, Pa. Note excellent condition of rivets and seams.

after 17 years in the Delaware River!

That's the service record of this steel barge. And it's still good for many more, even in these notoriously corrosive waters, thanks to the metallized zinc on its hull.

How YOU can profit from this example

Steel hulls may not be numbered among your corrosion problems. Maybe it's *tanks* (which are really *hulls* turned outside in). Whatever your problem, long-lasting metallized coatings are the low-cost, maintenance-free answer to the protection of your iron and steel structures and equipment, whether they're in contact with water—salt, fresh or "what have you" —or exposed to atmospheric attack.

Metallize 'em—and you can practically forget 'em.

The following organizations are set up to provide positive corrosion protection at lower annual cost in accordance with Metco* System specifications. For further information, or a copy of descriptive bulletin, contact the one nearest you.

**Reg. U. S. Pat. Off.—Property of Metallizing Engineering Co., Inc.*

The Metco Systems...

...are a series of 18 basic engineering specifications developed by Metallizing Engineering Co., Inc. The result of over 19 years of experience with pure zinc and aluminum coatings on many different types of structures and equipment, the Metco Systems provide the answer to standardization of surface preparation, metal coating thicknesses and organic after-coatings for various service conditions and appearance requirements.

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Lincoln Pk. 25 (Detroit), Mich. **DIX ENGINEERING CO., INC.** 1417 Dix Road Tel. Dunkirk 1-8822	**Philadelphia 29, Pa.** **METALWELD, INC.** Fox & Hunting Park Ave. Tel. Radcliff 5-3471	**St. Louis, Missouri** **NOOTER CORPORATION** 1420 South Second Street Tel. Main 6000	**Brooklyn, N. Y.** **ARTHUR TICKLE ENGINEERING WORKS, INC.** 21 Delevan Street Tel. Main 5-4200	**Houston, Texas** **F. W. GARTNER CO.** 3805 Lamar Avenue Tel. Atwood 5338

British Tories, now in the saddle, plan to build 300,000 houses annually

The victorious Tories in England have taken the first step to implement their campaign pledge to build 300,000 houses a year. Next year local housing authorities can license up to half of their building allocation to private builders. Under the Labor government the local authorities, which control virtually all residential building in England, could license up to only a fifth of their allocation to private builders.

Both the British Federation of Master Builders and the National Federation of Building Trades Employers greeted the announcement by Minister of Housing and Local Government Harold Macmillan with guarded optimism. The builders thought it a good first step but doubted that there would be any big results until many more shackles were removed.

The government announcement is not binding on the local authorities. Many in predominantly Labor areas undoubtedly will pay no attention. But in areas where the private builder is given more sway, he will have some chance to show he can deliver the goods faster.

• Difficulties of private developers—Two other large obstacles are still left in the way of private builders. First, the Labor government's Town & Country Planning Act, which is still in force, makes it extremely difficult for private developers to acquire land in advance on which to build housing developments. Then again, the law still stands which says that building licenses must be issued to the prospective purchaser of a house, not to the builders. This successfully prevents the private builder from undertaking large, low-cost estate developments which are becoming so common in the United States.

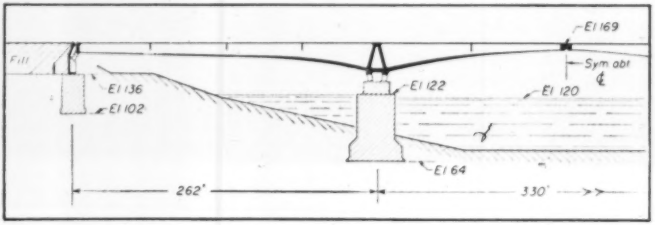
So far the Tories have not indicated that they are willing to act on either of these points. The Labor opposition has promised to fight all concessions to private builders. Said ex-Prime Minister Attlee of the new proposals: "one of the most dangerous and retrograde suggestions I have ever heard."

Macmillan also announced that the Tories would encourage local authorities to economize on space in the new houses and thus bring the cost down. These standards for a house: Superficial area less than 900 sq. ft. for a 3-bedroom house for five persons; 750 sq. ft. for a two-bedroom house would be enforced more rigidly than in the past.

• Labor and materials shortages—All this, Macmillan admits, won't produce 300,000 houses next year. There are still labor and material shortages. More important, Britain's building industry has a productivity record which, according to the impartial Organization for European Economic Cooperation, is actually worse than it was back in 1935.

British Standard Specifications for building materials and fittings are badly in need of a thorough-going overhaul. Too many standards still enforced by the local authorities completely ignore new materials that are in common use in the United States.

Construction techniques are hardly less backward. A completely mechanized construction site even in London is not common. With building labor at such a premium now, British contractors are badly in need of more construction equipment.



NEW TYPE CANTILEVER BRIDGE takes its novelty from a special design of shoe with inclined legs.

Cantilever on crutches is name given French bridge

Something new in bridges has appeared on the French scene in the crossing constructed for National Highway No. 7 over the Donzere-Mondragon navigation and power canal in the Rhone River valley (ENR Nov. 22, 1951). The novelty is expressed by a unique shoe arrangement consisting of twin bars set on end and inclined 1:10 on the vertical so that the loads passing through them converge toward the center of the foundation pier. Instead of merely being confined to some place in the middle third (as is the classic requirement), the resultant load is theoretically applied at the exact center of the base of the pier. As a result a minimum size pier can be used for general purposes.

This shoe arrangement, in two legs as it were, has been likened to crutches, so that the bridge is referred to as a crutch cantilever. Of reinforced concrete it contains three spans of 262-330-262 ft and consists of two hollow box girders of variable depth supporting a deck designed to take the heaviest military vehicles. An open joint at the center of the middle span accommodated jacks at the time of decentering, which were used to prestress the structure so that it would always be in compression regardless of the position or size of the loads. Deflections for this type of bridge, which was developed by the well-known French engineer, A. Caquot, are claimed to be much less than for a cantilever with vertical shoes.

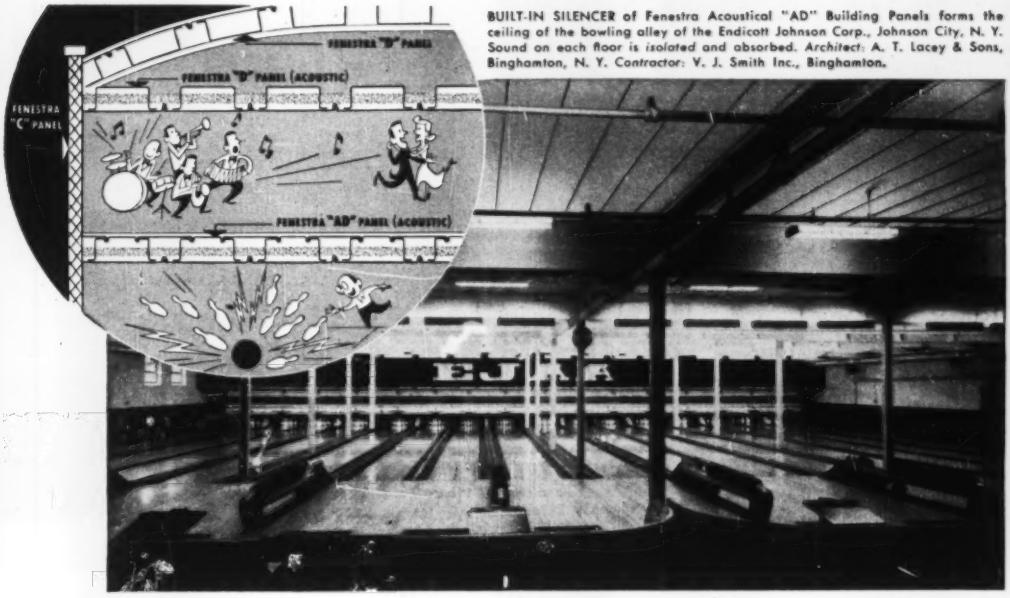
The bars or legs of the crutches on the piers are made of concrete reinforced by steel hooping. Similar bars, inclined 1:2 on the vertical, are also used at the abutments.

The side spans of the bridge were cast on falsework built up from the grounds before the canal was excavated. In contrast the center span forms were hung from steel girders cantilevered from the deck of the side spans.

Canada and Ontario agree on St. Lawrence project

An agreement has been signed between the governments of Canada and the Province of Ontario respecting the development of hydro power in the international rapids section of the St. Lawrence River (ENR, Dec. 13, page 76).

Agreement on the St. Lawrence which must still be approved by the federal parliament and the legislature of Ontario has been concluded in the expectation that the United States will not participate in the seaway project. The navigation works will be entirely within Canada but the understanding is that Ontario will undertake the power development concurrently with an appropriate agency in the United States.



BUILT-IN SILENCER of Fenestra Acoustical "AD" Building Panels forms the ceiling of the bowling alley of the Endicott Johnson Corp., Johnson City, N. Y. Sound on each floor is *isolated* and absorbed. *Architect:* A. T. Lacey & Sons, Binghamton, N. Y. *Contractor:* V. J. Smith Inc., Binghamton.

LOOK! an acoustical ceiling, a floor or roof ... *all in one money-saving package!*

Now you can save time, labor, materials, *money* and get a better job to boot. Fenestra* Acoustical "AD" Panels form a *built-in* silencer with a sound reduction coefficient of 0.80! Racket is isolated in each room, and absorbed. There's your answer to a noise problem that smashes worker-efficiency to the thundering tune of a reported $4,000,000 per day.

These long-span panels are *structural*. They form a finished ceiling and subfloor, or roof. Speedily and easily erected, these long-span panels are going into every *kind* of building. You can paint them without hurting their acoustical efficiency a bit. They're noncombustible.

DETAILS ON THE FENESTRA "AD" PANEL PACKAGE:

Size: Up to 24' long, 16" wide, 3", 4½", 6" and 7½" deep. 18 to 13-gage USS steel.

Elements: Cellular panel with ⅛" holes, 946 per square foot, in bottom surface. Wire-chair insulation support. 1" thick, 4¼-lb. density glass fibre sound insulation, coated on one side.

Send coupon for details. Or call the Fenestra Representative (listed under "Fenestra Building Products Company" in your Yellow Phone Book).

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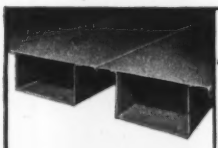
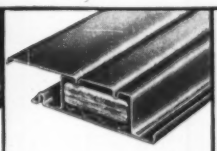
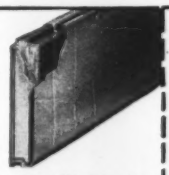


"D" Panels for floors, roofs, ceilings. Standard width 16". Depth 1½" to 7½".



Acoustical "AD" Panels for ceiling-silencer-roof. Width 16". Depth up to 7½".



"C" Insulated Wall Panels. Standard width 16". The depth is 3".

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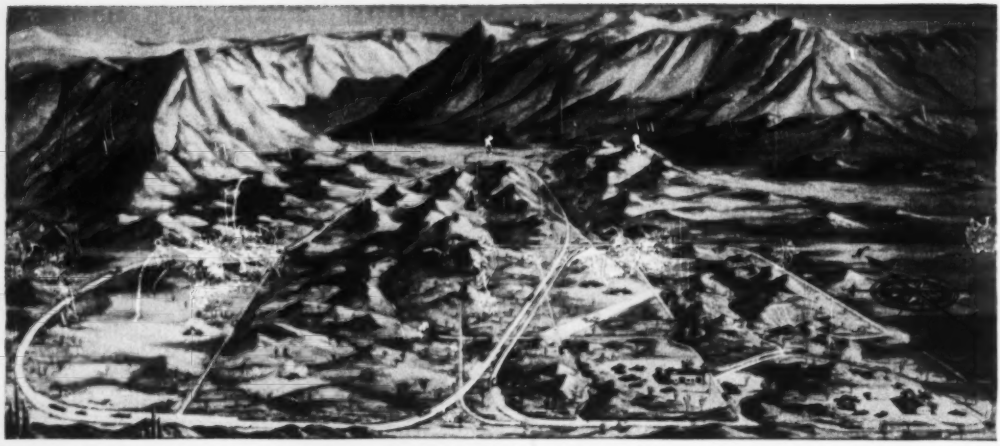

Even the buzzards need sunglasses as they wheel over the 6½ square mile hot box that is the Phoenix Proving Ground of International Trucks. Here, Internationals are put through a rugged grind as they roll round a 7¼-mile paved test track, on a 24-hour-a-day, 34,000-mile-a-week schedule. A 4-mile dirt test track and 11 miles of success roads help provide rugged approximation of every highway condition your truck may meet. Arizona test fleet mileage now totals over 5,000,000 miles.

Desert Whipping Post

Our Phoenix Proving Ground is a whopping whipping post built to help answer this question:

How can we develop even greater truck stamina than the traditional stamina which has kept Internationals first in heavy-duty truck sales for 19 straight years? Our search for the answer is continuous, because the problem of getting lower operating and maintenance costs and longer truck life is faced by truck owners every day.

Even after 45 years of building trucks, there's always something new to learn. These discoveries—whether they come out of blue prints, actual experience, or testing operations—become part of the value an International Truck gives you.

Your International Truck Dealer or Branch is ready with the world's most complete line of trucks, to help you whip your hauling problems. Get all the details, soon.

International Harvester Builds McCormick Farm Equipment and Farmall Tractors...Motor Trucks...Industrial Power...Refrigerators and Freezers

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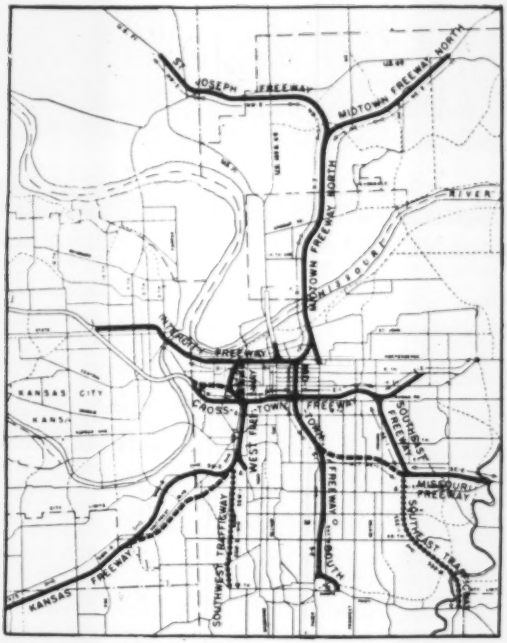
Internationals, with outriggers, are whipped around a figure-8 course to prove the capacity of front wheel spindles and wheels to withstand severe thrust.

Internationals Wheel around a long curve on the 7¼-mile paved test track. Drivers report on comfort, maneuverability and general handling characteristics.

Up "The Nine" (a 9% grade that forces drivers to test gear ranges), climb units of the International Truck test fleet on their constant circling of the test track.



Kansas City expressways planned for years in the future

Kansas City expressways have been analyzed as a complete metropolitan system influenced by conditions throughout the urban areas of Jackson and Clay counties in Missouri and Wyandotte and Johnson counties in Kansas. Only a small area is in the Plate County, Missouri, section.

Back of the study has been the inter-regional highway committee in the Greater Kansas City area which grew from a meeting called by mayors of Kansas City, Mo., and Kansas City, Kan., in 1943. Into its preparation went many studies of changes in population, traffic counts, travel time, and origin and destination.

The report accompanying the plan carries estimates of the cost of rights-of-way, construction, administration, depreciation and maintenance, and amortization of the investment.

Alternates outlined in the report could increase the cost of the entire project, including the Southwest trafficway section, up to $135,000,000.

About a quarter of the rights-of-way are unimproved and could be acquired on the present market for about $3,250,000. The unit projects excluding the Southwest trafficway, are:

- **Intercity freeway**—Utilizing Sixth street in Kansas City, Mo., and the Intercity viaduct linking the two Kansas cities.
- **Crosstown freeway**—Through Kansas City, Mo., north of Truman Road (15th street, at the south fringe of the downtown district) angling north in Kansas to a connection with the Intercity freeway at about 12th street in Kansas City, Kan.
- **North Midtown freeway** (two sections)—(A) over the proposed Lydia Avenue bridge north to Russell Road and North Woodland Avenue (in the Clay County part of Kansas City, Mo.) (B) from Russell and Woodland on U. S. highway No. 69 (this in Clay County).
- **St. Joseph freeway**—from Russell and Woodland west and north toward St. Joseph, Mo., following U. S. highway No. 71 bypass, and utilizing part of U. S. highway No. 169.
- **Kansas freeway**—from the southwest trafficway at about 27th Street in Kansas City, Mo., southwest over a new right-of-way to U. S. highway No. 69 in Johnson County, Kansas, then to U. S. highway No. 50 in Johnson County and west on it.
- **Southeast freeway**—from the crosstown freeway at Truman Road and Benton Boulevard in Kansas City, Mo., south and east to Twenty-ninth and Myrtle in the Missouri city.
- **Southeast trafficway**—from 29th and Myrtle south to U. S. highway No. 50 near the eastern city limits of Kansas City, Mo.
- **Missouri freeway**—from 29th and Myrtle east to U. S. highway No. 40.
- **South midtown freeway**—south from the Intercity freeway at about Harrison, in Kansas City, Mo., with an elaborate interchange at Truman Road and on south to Forty-fifth Street and the Paseo (Kansas City, Mo.) with a connection running to Swope Parkway at Brooklyn Avenue (in the southeastern part of Kansas City, Mo.)

Four of the freeways form a loop around the central retail area of Kansas City, Mo., with the Intercity freeway on the north; the Kansas freeway on the west; the crosstown freeway on the south, and the south midtown freeway on the east.

Big public works program planned for Kansas City

A new $45,000,000 to $60,000,000 public improvement bond program for Kansas City, Mo., is being drawn up by city planners and engineers, the city council was informed by City Manager L. P. Cookingham.

City engineers and planners are endeavoring to complete their studies and recommendations so that the mayor and council can consider them and submit part or all of the program to the voters April 8.

Projects and tentatives amounts of bonds being considered to finance them include:

Off-street parking revenue bonds, from $5,000,000 to $10,000,000.

Aviation revenue bonds, $20,000,000 for construction of a new superairport and hangars and buildings.

Aviation general obligation bonds, $3,500,000 to $4,000,000, to purchase land and make improvements at the airport.

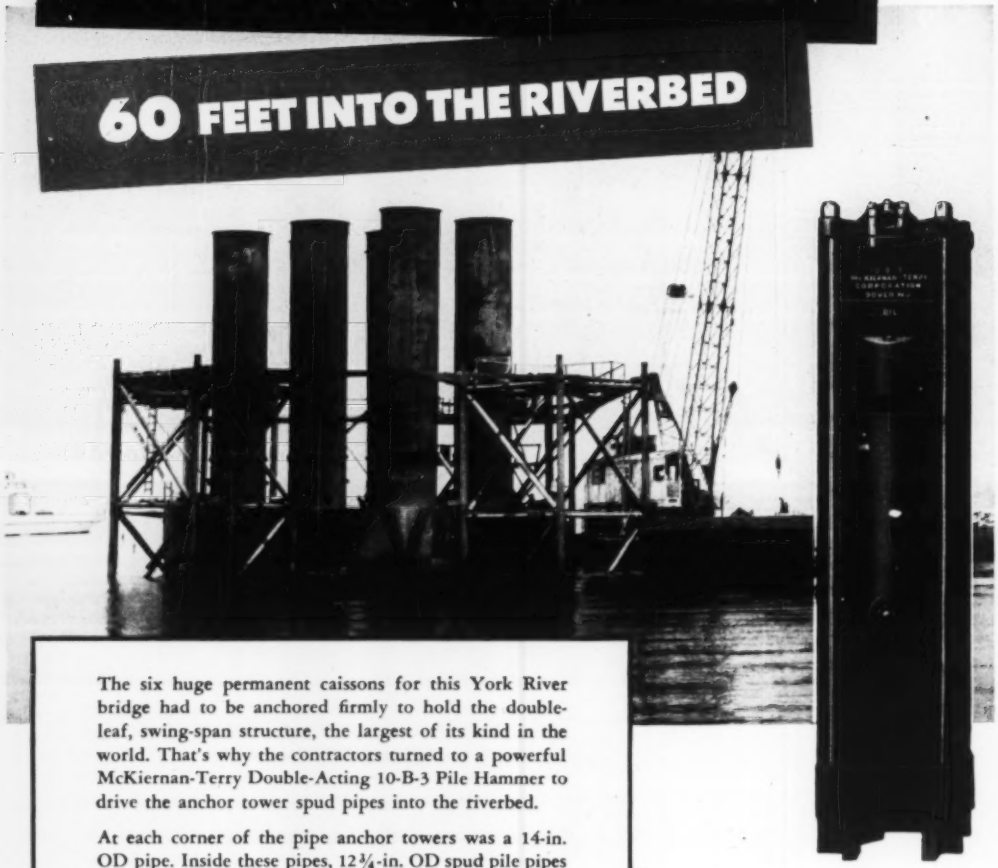
Special improvement bonds, $10,000,000 or $20,000,000, which would be paid off in accordance with special assessment payment programs for public improvements, including sewers.

Meanwhile, the council received a proposal for the engineering, financing and construction of a new $4,500,000, high-level bridge across the Missouri River to replace the highway deck of the Hannibal Bridge.

Ernest E. Howard, of Howard, Needles, Tammen & Bergendoff, suggested that the project be financed with revenue bonds, payable from toll charges.

This McKiernan-Terry Pile Hammer drove spud pipes in these dock towers

60 FEET INTO THE RIVERBED



The six huge permanent caissons for this York River bridge had to be anchored firmly to hold the double-leaf, swing-span structure, the largest of its kind in the world. That's why the contractors turned to a powerful McKiernan-Terry Double-Acting 10-B-3 Pile Hammer to drive the anchor tower spud pipes into the riverbed.

At each corner of the pipe anchor towers was a 14-in. OD pipe. Inside these pipes, 12¾-in. OD spud pile pipes from 140 to 150 feet long were driven 60 feet below the river bottom by the McKiernan-Terry Hammer. Piles for steel sheet cofferdams were also punched down quickly by a McKiernan-Terry No. 7 Double-Acting Hammer.

On scores of bridges throughout the country—and many other types of construction jobs—McKiernan-Terry equipment is playing a vital role. No wonder contractors rely on the power and dependability of McKiernan-Terry hammers and extractors. Wide range line includes 16 sizes of hammers and 2 sizes of extractors. Write for bulletin.

McKiernan-Terry 10-B-3 Pile Hammer which helped to build the substructure for the new bridge at Yorktown, Va. Massman Construction Co. and Kansas City Bridge Co. were the contractors.

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MK 919

MEETINGS

N. Y. State Contractors name new officers

Maurice A. Rowley, of the Rochester, N. Y. contracting firm of Swartout & Rowley is now president of the Building Industry Employers Association of New York State.

Also named at the meeting, held in Syracuse, was Gerald E. Waldbillig, of the John B. Waldbillig & Co., general contractors, of Albany.

James F. Summers, of Troy, was continued in his office as secretary.

At the 56th Annual Meeting, BIE Members directed their officers to make a survey of the state contractors who determine how they had been affected by various federal government control programs.

Wisconsin land surveyors organize association

In order to seek legislation calling for the registration of all practicing surveyors in the state, a group of Wisconsin land surveyors has organized the Wisconsin Society of Land Surveyors.

By compulsory registration of all surveyors the society hopes that errors in land descriptions and platting will be eliminated, and it desires to foster high standards of professional ethics.

Elected president of the society was Robert M. Poss, city engineer of Marinette. Richard B. Mecha, of Manitowac, was chosen vice-president, and directors are O. O. Bergman, Alex W. Ely, and R. P. Boyd.

Quality concrete course to be given in Georgia

Intended to bring construction men up-to-date on the design and control of concrete mixtures, placing, forms and curing, a short course in quality concrete will be held at the Georgia Institute of Technology, Atlanta, Feb. 4-6.

There will be two sections in the course. One will appeal to ready-mix operators, engineers, architects and contractors. The other will interest concrete masonry and pipe manufacturers.

Prof. R. J. Paquette, director of the short course which is being conducted by the School of Civil Engineering, stressed that a full day in the laboratory will be given to all enrolled in the course. Participants will actually make tests and determine correct weights and volumes of materials to obtain a specified concrete.

Pay increase for engineers

The N. Y. State Civil Service Department has approved a temporary $300-a-year salary increase for about 175 first-year engineers and new appointees, effective April 1.

This will raise the minimum annual pay from $3,238 to $3,541. Positions affected by the increase are those of senior engineering aide, senior draftsmen, senior mechanical draftsmen and senior architectural draftsmen.

CALENDAR

Kansas Contractors Association, annual meeting, Hotel President, Kansas City, Mo., Jan. 10-11.

N. Y. Section, American Water Works Assn., winter luncheon meeting, Hotel Park Sheraton, N. Y., Jan. 15.

Highway Research Board, annual meeting, National Academy of Science Bldg., Washington, D. C., Jan. 15-18.

N. Y. Sewage and Industrial Wastes Association, annual meeting, Hotel Statler, N. Y. City, Jan. 17-18.

Canadian Construction Association, annual meeting, Royal York Hotel, Toronto, Ont., Jan. 20-23.

National Association of Home Builders, annual convention and exposition, Conrad Hilton and Congress Hotel, Chicago, Jan. 20-24.

American Road Builders Association, Golden Anniversary, Rice Hotel, Houston, Tex., Jan. 21-24.

Wisconsin Highway Commissioners and Highway Committee Members Association, winter conference, Schroeder Hotel, Milwaukee, Jan. 22-24.

Associated Equipment Distributors, Conrad Hilton Hotel, Chicago, Jan. 27-31.

American Society for Metals, William Penn Hotel, Pittsburgh, Pa., Jan. 31-Feb. 1.

California Conference on Street and Highway Problems, University of California, Los Angeles, Feb. 6-8.

National Council of Private Motor Truck Owners, convention, Hotel Statler, Washington, D. C., Feb. 7-8.

National Sand and Gravel Association, and National Ready Mixed Concrete Association, convention and exposition, Conrad Hilton Hotel, Chicago, Ill., week of Feb. 11.

Illinois annual Conference on Highway Engineering, Urbana, Feb. 19-21.

N. Y. State County Highway Superintendents Association, DeWitt Clinton Hotel, Albany, Feb. 20-22.

Associated General Contractors of America, Statler Hotel, Detroit, Feb. 25-28.

Materials Handling Conference, Purdue University, Lafayette, Ind., Feb. 25-26.

American Concrete Pipe Association, annual convention, Drake Hotel, Chicago, Ill., Feb. 28-March 1.

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Place your clamshell QUICK over the EXACT spot where you want to dump the load, without a man there to guide it. Turn, spin, snub or cast your bucket directly from the cab!

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No—you don't need a man to spot the bucket when you use the TAG MASTER. With the TAG MASTER you put 'er right down in any spot or corner, or lower through waling and bracing on a trench job—right from the cab! No delay. No danger.

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MEN AND JOBS

New Hampshire engineers must register Jan. 1

CONCORD, N. H.—Professional engineers practicing in New Hampshire must register with the state Board of Registration for Professional Engineers Jan. 1, under mandatory registration legislation enacted by the 1951 General Court.

Since 1945, New Hampshire has had a permissive registration law for engineers, under supervision of the state board. Registration now becomes mandatory. Beginning Jan. 1, "any person in either public or private capacity practicing or offering to practice professional engineering," must submit evidence he is qualified.

Qualifications set by law include advanced knowledge of mathematics, and the physical sciences, and experience in the practical application of this knowledge. A. M. Whittemore, secretary of the N. H. Society of Engineers, who lobbied for enactment of the compulsory registration law, calls these the "fundamental working tools of the engineer."

Copies of the new law, and regulations under it, may be obtained from the board at its office, 6 School St., Hudson, N. H.

New appointments

Highway Departments

M. H. Frimodig, formerly contract-estimate engineer for the Michigan State Highway Department, Lansing, Mich., is now with the Michigan Surety Co., and the Standard Accident Co.

State, city and county

John Crane is senior city planner of Youngstown, Ohio.

R. H. Clinger is assistant engineer of Dallas County, Tex.

Corps of Engineers

Robert G. Macdonald has been made post engineer at Utah General Depot, Ogden.

Everett R. Burkhardt has been appointed chief engineer of the Holyoke, Mass., Water Power Co.

Government Agencies

John Carmody, former Maritime commissioner, has been appointed engineering consultant for the Small Defense Plants Corp. in Washington, D. C.

DeLeuw, Cather & Co have been retained by the Philippine government to make an engineering and economic investigation and report on the government-owned Philippine Railroad. This study is sponsored by the ECA.

Walter H. Weiwel of the Crucible Steel Co. has been appointed assistant administrator of the National Production Authority in charge of the metals and minerals bureau.

Industrial and commercial

Harry A. DeButts, civil engineer will become president of the Southern Railway on Jan. 1, 1952.

Carleton B. Shaffer has joined the Delaware Development to organize its industrial division.

Engineering schools

Rudyard M. Cook, assistant professor of civil engineering at Northwestern University has been made head of the civil engineering department at the University of Akron, Ohio.

Prof. Walter J. Seelig has been made director of research and development for the college of engineering at Duke University.

David L. Arm, dean of the school of engineering at the University of Delaware, has been elected chairman of the engineering division of the Association of Land-Grant Colleges and Universities.

Prof. P. H. McGauhey, formerly head of the civil engineering department at Virginia Polytechnic Institute, is now in charge of the sanitary engineering research projects of the University of California at Richmond, Calif.

L. G. Rich is now in charge of the sanitary division at the Virginia Polytechnic Institute.

Ralph W. Kluge is now head professor of civil engineering at the University of Florida.

John R. Snell, Cambridge, Mass., president of Engineering Services, Inc., lecturer on sanitary engineering at Massachusetts Institute of Technology, has been named head of the department of civil engineering, Michigan State College, East Lansing, Mich.

Honors

H. F. Blomquist, long time superintendent of the Cedar Rapids, Iowa, waterworks, has been honored by the city council. An addition to the local filtration plant doubling its capacity to 24 mgd has been named after him.

Resignations

Wm. G. Riley president of the Indiana Limestone Co., Inc., Bedford, Md., for the last five years, has resigned.

OBITUARY

Maj. Gen. David McCoach, Jr., 64, retired Army Engineer and vice-president of the Charles H. Tompkins Construction Co., Washington, D. C., died Dec. 15. Following service in World War I he had been district engineer at Pittsburgh, Detroit, and New York. Just prior to World War II, he was in charge of our airbase construction in the Caribbean. Later he was chief engineer of the Mediterranean theatre from Sept., 1944, to May, 1945, aiding the landings in southern France, and then reconstruction in Italy. From 1928 to 1941, he was engineer commissioner of the District of Columbia.

Francis E. Lackey, 70, construction superintendent with the Indiana Asphalt Paving Co., Indianapolis, for 45 years, died Dec. 9 in that city. He helped build the Indiana World War Memorial in Indianapolis and the George Rogers Clark Memorial at Vincennes.

Albert Peterson, 68, superintendent of city streets at Youngstown, O., since 1936, died Dec. 8. Last October he was elected president of the Street Maintenance and Sanitation Officials of Ohio, in which he was active for many years. He was with the Victor Olson Contracting Co., Youngstown, beginning in 1916, and built many of the city's principal streets.

J. Frank Mathews, 48, Quitman, Ga. engineer and highway contractor, died Dec. 9 in New Orleans. From 1940 to 1943 he was general superintendent and project manager for Pan American Airways in constructing and developing airports in Guatemala. He was a graduate of Georgia Tech.

Robert C. Fergus, 65, died at Nashville, Tenn., Dec. 5, 1951. A graduate of the civil engineering school of the University of Tennessee in 1911, Mr. Fergus took postgraduate work at Columbia University in New York. He had served as assistant professor of engineering at the University of Tennessee, as city engineer of Knoxville, and as district engineer for the State Highway Department of Tennessee. He was assistant administrator for WPA in Tennessee.

Ben G. Thrilkel, 73, a civilian employee of the Army Corps of Engineers in Louisville, Ky., for 50 years, died Dec. 4. When he retired in 1948 he was cited for meritorious civilian service—said to have been the longest in the history of the corps.

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LABOR

WSB slates approval of new benefit plans

New and improved health and welfare benefit plans soon may be put into operation—and not charged against the 10% "catchup" wage formula—if the benefits are kept within specified limits.

A policy for stabilizing health and welfare benefits has been recommended to Economic Stabilizer Roger L. Putnam by the Wage Stabilization Board. The details will not be disclosed until approved by Putnam. Meanwhile, WSB has begun consideration of a similar policy for pensions.

As suggested by WSB, the policy on health and welfare benefits will contain yardsticks to tell employers how liberal they can be. In 99 percent of the cases, according to WSB Chairman Nathan P. Feinsinger, the employer will be able to determine clearly whether his plan comes within the rules.

The policy will be self-administered—something like that for wage rates in new plants. If his welfare plan comes within the rules, the employer may put it into effect 30 days after filing details with WSB. If the plan exceeds the limits, prior approval must be obtained before it can be effective.

For example: The rules may set a limit of $1,500 or 85% of annual earnings on life insurance. Any life insurance plan that doesn't go beyond that could be put into effect 30 days after notice to WSB. If you want to give more insurance, you must get WSB approval before you can install the plan.

Arbitration award doesn't stop T-H rights

An arbitration award cannot be used to deny an employee his rights under the Taft-Hartley Law. The National Labor Relations Board has set aside an arbitration decision and directed both the Monsanto Chemical Co. and the AFL Chemical Workers to reinstate—with back pay—an employee discharged for not paying union dues.

Although he had resigned from the union prior to the effective date of a maintenance-of-membership clause, the employee in question was fired (on union demand) when he failed to pay dues by the date set by an arbitrator.

NLRB based its action on a Supreme Court decision. In addition to ordering the man reinstated with full seniority, it ordered the union to share in the cost of the back pay due him.

Set wage hike for Alaska workers

A 25-cent-an-hour wage increase for some 12,000 construction workers in Alaska has been agreed upon by eight unions and the Alaska chapter of the Associated General Contractors.

The raise is subject to approval by the Wage Stabilization Board.

The pay increase will bring basic pay rates of carpenters to $3.39 an hour; bulldozer operators to $3.47; shovel operators, $3.82; laborers, $2.98 and dump truck and flatbed truck drivers, to $3.12.

In addition, the contractors agreed to join with the unions in a demand for improved living conditions for workers on government construction projects. Each worker now pays $5.75 a day for lodging and food in the camps, the facilities being provided through the government and private catering contracts. Union men have complained of food, toilet and shower facilities and lack of proper policing and accommodations.

Labor briefs . . .

• **Pipe agreement**—Maintenance and construction workers of the Ohio Fuel Gas Co. (Toledo) have accepted a new contract providing that the company will not contract with "outsiders" for laying gas pipe 10 in. in diameter or less. The provision grew out of a dispute when the company retained private contractors for emergency work during a critical fuel shortage.

• **Halt strikes?**—A second general meeting in an attempt to halt recurring strikes at the big Joppa, Ill., power plant of Electric Energy Inc. (the 17th stoppage is now in progress) will be held at Metropolis, Ill. between trades unions and the contractor. A plan awaiting endorsement, calls for formation of a council to arbitrate squabbles between the construction crafts.

• **National conference planned**—The U.S. Chamber of Commerce, with the Pittsburgh, Pa., chamber, will hold a national conference on Labor relations at Pittsburgh Feb. 12. Wage and salary stabilization, collective bargaining, politics and general manpower problems are on the agenda.

• **Must take job**—A person drawing unemployment insurance benefits and who refuses to accept a part-time job from his former full-time employer loses his benefit rights, the New York State Supreme Court said last week.

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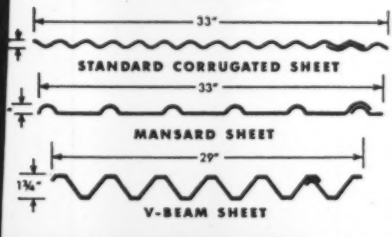

THE TOP-SPEED FASTENING METHOD

permits all fastening work from the outside, eliminates interior scaffolding. This new method permits erection crews to place twice as much material in the same time, with safety. Top-Speed Insulation is a Robertson method for applying insulation from the outside, before the Galbestos is fastened over it. This method also halves the time. It makes a good-looking job inside. Needs no painting.

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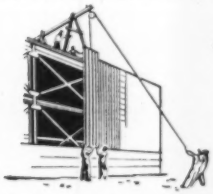
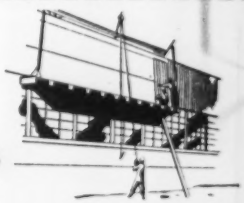


Q-PANEL (STANDARD) OR Q-PANEL (G-TYPE)



Q-Panels are the famous Robertson factory-fabricated, insulated curtain wall. They are available in a variety of fluted metal surfaces. Available 2' wide, in lengths up to 25', lightweight, only 3¼" thick, but superior in insulation value to a 12" masonry wall with furred plaster. A small crew can erect a Q-Panel—50 sq. feet—in 9 minutes.

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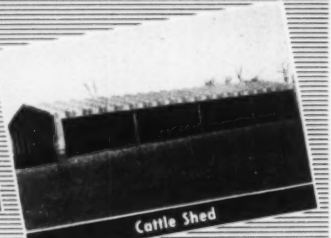

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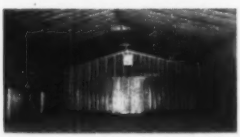

No truss members in roof. No support columns in interior. No curved walls or frame work.

Write or wire for information; or estimates on construction in which you may be interested.

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OPS issues new price order on used construction equipment

The Office of Price Stabilization has issued a new ceiling price regulation for used construction machinery.

Tailored specifically for used industrial and construction machinery and related equipment, the new regulation (CPR 105) supplies a more workable basis for figuring selling prices than did the general ceiling price regulation.

• **How it's figured**—The improvement comes mainly from a new definition of base price to which either a straight percentage allowance or a depreciation method may be applied in figuring the permissible ceiling price.

For rebuilt and guaranteed equipment, the seller may use a ceiling price equal to 85% of the base price. But for equipment that is not rebuilt and guaranteed, the ceiling price—on a straight percentage basis—may not exceed 55%.

In both cases, the seller has the option of figuring his ceiling price by the depreciation method for any type of equipment—from attachments to welders—included in a long list that appears in CPR 105.

• **Specify depreciation rates**—Annual rates of depreciation, ranging from 3 to 30%, are specified for the various equipment items. These rates apply to the base price.

For equipment that is not rebuilt and guaranteed, however, the ceiling price—even by the depreciation method—cannot be higher than 80% of the base price.

To find the base price, the seller looks up the price of the same or similar equipment (price in effect at the time of the sale) in the manufacturer's current price list.

• **Alternate methods provided**—If there is no current price list, the regulation supplies alternate methods of determining the base price. To this base, the seller applies the specified percentages—using either the straight or the depreciation method—to arrive at the ceiling price. Revision and simplification of the base price definition are expected to make pricing easier and more realistic for both the seller and the buyer.

The new price order governing the sale of used construction machinery will get more attention than normal because steel allotments to construction machinery manufacturers have been far under the industry's needs, and new machinery available to contractors has been inevitably reduced, as shipments show.

Census Bureau reports machinery shipments

The Bureau of the Census reported this week that third quarter shipments of excavating and earthmoving equipment, including tractors, were valued at $158.6 million, compared to $210 million in the second quarter of 1951.

While the cutbacks in structural steel shipments had been expected to hit shipments of construction machinery, (ENR Sept. 27) some categories were affected much more than others during the third quarter.

Shipments of power cranes and shovels (¾ to 2½ cu yd capacity) were valued at $43.5 million in the third quarter, compared to $46.7 million in the second quarter.

The value of road construction and maintenance machinery shipped in the third quarter was $31 million, compared to $43.3 million in the preceding quarter.

Ditchers and trenchers shipped in the third quarter were valued at $1.9 million compared to $2.8 million in the preceding three months.

Carrying and hauling scrapers were valued at $9.4 million in the third quarter. This compared to $11.1 million in the second quarter.

As an example of this, motor graders and light maintainers had shipments valued at $13.9 million in the third quarter—far under the $24 million in the second quarter.

Tracklaying-type tractors were down from the second quarter level of $74.5 million to $47.1 million in the third quarter.

HHFA programs more units in defense housing areas

The Housing and Home Finance Agency has programmed 500 defense housing rental units for Camp Lejeune, North Carolina, in addition to the 300 sales units approved for the area in July after the section had been designated as a critical defense housing area.

HHFA also announced that 500 units have been programmed for the Utica-Rome, New York, area; another 400 for Pensacola, Florida, and an additional 100 for Parris Island, S. C.

CONSTRUCTION MACHINERY "ON THE BLOCK"—Percy Ross, (standing on engine) head of an auction firm which handled this $1.5 million construction machinery sale at the Minnesota State Fair Grounds in October (ENR, Nov. 1, p. 41) will wield the auctioneer's hammer again January 21 and 22, this time in Cleveland, Ohio, when between $2 million and $3 million worth of used construction, road and excavating equipment will be sold to the highest bidder.

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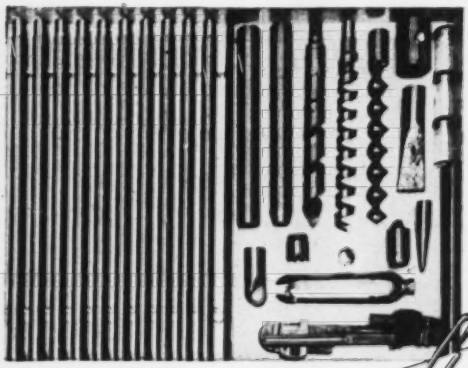

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Ohio studies financing of $5 billion road plan

The Ohio Highway Fiscal Study Committee, headed by Herbert D. Simpson, has reported to the Ohio Program Commission that a proposed 20-year, $5 billion Ohio highway department program can be "financed without any undue hardship on anyone".

He listed the program as the minimum necessary to bring Ohio highways up to "tolerable standards". Mr. Simpson estimated the yearly cost of the program at $269 million.

• **How to raise the money**—Faced with the problem of figuring out where the money would come from to finance this huge program, the Fiscal Study report recommended an additional cent-a-gallon increase in the Ohio gasoline tax, which would be five cents a gallon; a 7½ cent tax on diesel fuel; an increase in truck license fees, or as an alternative, a ton-mile tax based on vehicle weight and distance traveled; reclassification of the road system to consolidate township and county programs.

The report also recommended elimination of present "arbitrary specifications" for construction and maintenance spending; and a change in the money distribution formula to permit the state to receive 51.2% of all motor vehicle revenues; counties, 30.2%; municipalities, 14.8% and townships, 3.8%.

• **Need more matching funds**—The Ohio Highway Program Commission, which lacks only a report from the Ohio Trucking Assn. before making detailed financing recommendations, also received a warning from T. J. Kauer, Ohio Highway Director, that the state will lack $39 million of matching federal funds for $101.5 million in new highway construction during the two-year period ending June 30, 1953. The state must raise that much more to take advantage of the full offering of federal matching funds.

Business briefs . . .

• **Housing starts**—The Bureau of Labor Statistics estimated November housing starts at 76,000. The August figure was revised, moving up from 85,000 to 89,100 units. The total number of housing starts for the first eleven months was 1,022,600, BLS said.

• **AGC index**—The Associated General Contractors construction cost index for November was down one point from the preceding month, showing a new reading of 378 (1913 equals 100). The index was up seven points over November, 1950.

UNIT PRICES BID BY CONTRACTORS

Paving, skew bridge, Mo.

Portland cement concrete paving, and structures for 1.467 mi of highway in Atchison County, Mo. and a skew bridge were let June 29, 1951 by Missouri State Highway Department, C. W. Brown, chief engineer, V. W. Enslow, bridge engineer, R. M. Whitton, project engineer.

Work is on route 275 from the Iowa state line south. The bridge is over Kings Branch, 3 mi south of Hamburg, Ia. Pavement is 22 ft wide. The bridge has 50'-60'-50' continuous I-beam spans on almost a 45° skew. Piers are 3-column bents on steel pile-supported footings. The job is 3 mi from a railroad.

Completion time for the bridge is 110 working days. Minimum wages are $0.75 for unskilled workers, $0.80 for skilled.

Bidders included:

1	C Knutson-Gould Construction Co., Kansas City, Mo	$238,425
2	Condon-Cunningham Co., Omaha, Nebr	258,595
3	C. H. Atkinson Paving Co., Chillicothe, Mo	259,458

Bids: 6-29-51 Items Pavement	Unit	Quantity	Unit prices 1 C	2
Clearing	ac	8.8	$200.00	$250.00
Grubbing	ac	8.0	100.00	145.00
Class A excavation	cy	111,494	0.33	0.30
Class 3 exc for structs	cy	1,175	3.00	2.50
Compact embankments, roll	cy	80,538	0.03	0.05
Compact in cuts, rolling	cy	10,700	0.001	0.15
Overhaul	stay	46,162	0.01	0.01
Remov pavement	sy	13,551	0.50	0.65
Remov guard fence	lf	1,509	0.25	0.30
Water, compact-roll	Cgal	16,422	0.00	0.10
Placing rock fill	cy	178	4.00	1.40
Grav A or cr stone surf	cy	125	4.00	5.00
Port c conc pavement	sy	18,563	4.90	4.90
Cl B conc, box culv	cy	37.3	70.00	70.00
Cl B conc other than box culv	cy	44.2	100.00	85.00
12" culv pipe	lf	140	2.50	2.75
15"	lf	56	3.50	3.40
18"	lf	553	4.00	4.25
24"	lf	802	5.50	6.50
42"	lf	175	13.50	15.75
Relaid pipe culverts	lf	92	4.50	2.00
Reinf steel	lb	7,950	0.13	0.15
Barricades	ea	2	175.00	225.00
Reloc barricades	ea	2	50.00	45.00
Grates & bearing plates	lb	270	0.50	0.50
Fertilizing & mulching	ac	14.0	175.00	200.00
Bridge				
Cl 1 exc for structs	cy	300	7.50	3.50
Cl 2	cy	258	17.50	20.00
Cl B conc, superstruct	cy	118.5	60.00	95.00
Cl B conc, substruct incl end posts	cy	192.4	60.00	75.00
Fabr struct stl, I-beam spans	lb	128,900	0.15	0.20
Steel castings	lb	5,220	0.70	1.00
Reinforcing steel	lb	49,040	0.125	0.15
Steel piles in place	lf	2,062	7.00	7.00
Stl pile cut-offs (at 50% of price bid for stl piles in place)	lf	159	3.50	3.50
Remov existing struct	ls	....	3,000.00	3,000.00

Gravel surfacing, Miss.

The Mississippi State Highway Department awarded the contract for 3.635 mi of 3" gravel surfacing between Independence and Coldwater, Miss. to the L & P Construction Company for a low bid, July 3, of $63,469.37. This bid was 3% above the engineer's estimate. R. A. Harris is chief engineer.

Work includes 3 miles of grading along the existing road, installation of 3" gravel surface course, construction of concrete box and pipe culverts, and sprigging of slopes. All equipment for the project is to be furnished by the contractor and work is to be completed in 100 working days. The job is six and a half miles from a railroad.

Wage rates in this area are $2.25 an hour for motor grader operators; $2.00 an hour for shovel and dragline operators; $2.00 for tractor drivers; $1.25 to $1.50 for truck drivers; $.75 to $1.00 for common labor.

Bidders were:

1	C L & P Construction Co., Memphis, Tenn.	$63,469.3
2	H. D. Bouchillion, Durant, Miss	67,399.39
4	O. J. Stanton & Co., Greenwood, Miss	88,356.37

Bids: 7-3-51 Items	Unit	Quantity	Unit prices 1 C	2
Clear & grub	ls		$4,000.00	$7,000.00
Random clear & grub	ac	1	100.00	250.00
Unclass exc	cy	57,644	0.33	0.32
Struct exc	cy	300	2.00	1.50
Haul of exc	stay	168,225	0.005	0.01
Water	gal	134.4	1.00	2.00
Grav surf crse (semi-grav LVM)	cy	3,059	1.75	2.00
Cl B conc	cy	321.17	54.00	53.00
Reinf steel	lb	46,080	0.125	0.13
18" pipe culv, alt #1	lf	225	3.50	3.75
Alt #2	lf	225	nb	nb
24" pipe culv, alt #1	lf	48	5.50	5.50
Alt #2	lf	48	nb	nb
30" pipe culv, alt #1	lf	180	7.50	7.50
Alt #2	lf	180	nb	nb
36" pipe culv, alt #1	lf	84	10.00	10.00
Alt #2	lf	84	nb	nb
42" RC pipe culv, std str	lf	68	14.50	15.00
54"	lf	64	20.50	18.50
15" pipe sidedrn alt #1	lf	450	2.75	2.50
Alt #2	lf	450	nb	nb
18" pipe sidedrn alt #1	lf	252	3.25	3.25
Alt #2	lf	252	nb	nb
24" pipe sidedrn alt #1	lf	48	4.75	4.50
Alt #2	lf	48	nb	nb
30" pipe sidedrn alt #1	lf	80	6.50	7.00
Alt #2	lf	80	nb	nb
ROW markers	ea	102	5.00	5.00
ROW mrkrs r & r	ea	2	3.00	5.00
Agric limestone	ton	8.96	30.00	25.00
Commer fertilizer	ton	4.50	70.00	80.00
Sprigging	sy	21,422	0.05	0.05
Solid sodding	sy	250	0.60	0.50

a—Alt 1: Std str RC culv pipe ‹— Alt 1: Pl conc sewer pipe
b—Alt 2: Extra str VC culv pipe ‹— Alt 2: Std str VC pipe

Runway extension, Wash.

For the 2,400-ft runway extension at Boeing field, Seattle, some unstable fill had to be removed, some of the area was swampy and workers had to ignore the airplanes. D. L. Evans, King County Engineer, Seattle is engineer. Work started July 10 and was to be completed Oct. 15. The job is 1 mi from the railroad.

Wages range from $1.95 for common labor to $2.40 for semi-skilled and $2.75 for skilled labor.

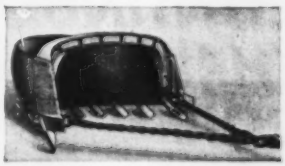
The three bidders are:

1	Fiorito Bros., Seattle	$344,923
2	Northwest Constr. Co., Seattle	377,081
3	N. Fiorito Co., Seattle	414,032

Bids: 6-18-51 Items	Unit	Quantity	Unit prices 1 C	2
Clear & grub	ls		$3,500.00	$12,500.00
Exc, fill & grad	cy	133,153	0.32	0.39
Com borrow in pl	cy	93,485	0.32	0.39
Sub-base crse in pl	cy	14,155	2.50	1.55
Cr stone top crse in pl	ton	4,366	3.00	2.20
C conc pave, 5-sack mix, 9" sec in pl	sy	46,078	3.20	3.50
11" sec in pl	sy	15,794	3.74	4.00
30" std RC culv pipe in pl	lf	102	10.50	16.00
Conc catch basin	ea	1	250.00	360.00
Rem exist conc pave	sy	1,530	0.60	0.70
asph pave	sy	1,390	0.30	0.60
2-way, 3" undrgrnd elect ducts in pl	lf	580	3.30	4.00
2-way, 4" undrgrnd elect duct in pl	lf	220	3.95	4.60
4-way, ducts in pl		220	4.75	5.50

SAUERMAN

CRESCENT SCRAPERS



ON THOUSANDS of earthmoving jobs, Sauerman Scraper machines equipped with the unique Crescent bottomless bucket, are cutting costs in digging, hauling and dumping almost every kind of material.

A Crescent bucket penetrates tough materials with ease, gets a full load quickly, hauls this load at speed of 400 f.p.m.—all with economical use of power.

CRESCENT Scraper buckets are built in five types and fifteen sizes. Pictured above is a large size CRESCENT designed for heavy excavating.

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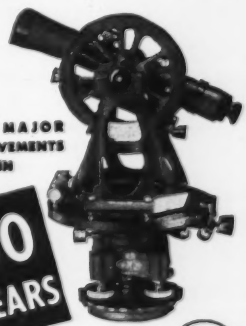

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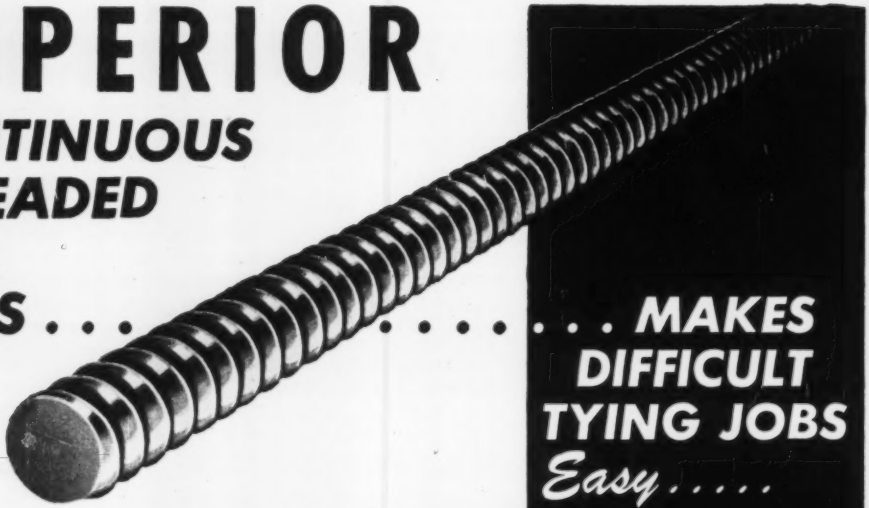

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In three typical applications, shown at the right, these Continuous Threaded Rods are used; (1) to tie form corners; (2) as an anchor rod tie down and as coil bolts; and (3) as a coupling for two coil ties providing an adjustable form tie.

Available in ½", ¾", and 1" diameters and in any length up to 10 ft., Superior Continuous Threaded Coil Rods in quantities can be cut to length on the job with a heavy-duty hand Coil Rod Cutter.

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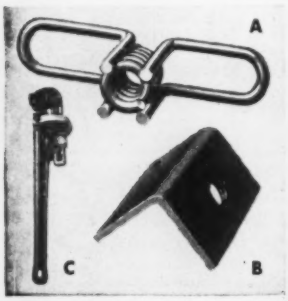

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C-SPECIAL COIL ROD WRENCH
Heavy-duty Stillson type wrench with special jaws for gripping and turning Coil Rods with least damage to threads.

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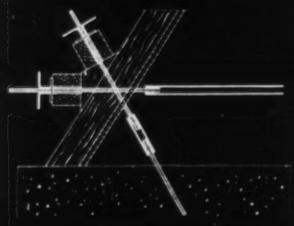

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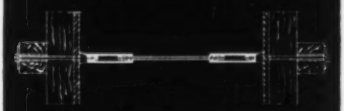

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston; **Kelleher Corp.**, 15 Walnut St., Turners Falls, Mass. LB $325,059, est. $300,000. hy. reconstr., S-91, Williamstown-Hancock; **Charles Capone Constr. Corp.**, 32 Wellsmere Rd., Roslindale, Mass. LB $68,622, est. $70,000. hy. work, Saugus. Bids Dec. 11. CD 11/27 and 12/5.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Cayuga Foundation Corp.**, 30 Vesey St., New York 7, N. Y., LB $2,692,585, Route 110-C, Liberty Ave. connection, Pitkin and Liberty Aves., Grant Ave. to 77 St., Brooklyn and Queens Boros, NEW YORK. Bd. Transportation, 370 Jay St., Brooklyn 1, N. Y. Bids Dec. 10. CD 11/28.

▲ **Union Building & Constr. Corp.**, 631 Main Ave., Passaic, N. J., LB $2,743,130, Runway A and Taxiway T-2 grading, drainage and paving, Newark Airport, Contr. NA-220,002, NEWARK, N. J. Port of New York Auth., 111 8 Ave., New York 11, N. Y. Bids Dec. 11. CD 11/23.

▲† **Ayers-Hagan-Booth, Inc.**, 35 Westminster St., R.I., LB $1,096,000. H-8 Hydraulic Catapult NOY 29959, PATUXENT RIVER, MD. Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. Bids Dec. 5. CD 11/26.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Gardella & Gray, Inc.**, 1860 Broadway, New York 23, N. Y. CA. $1,228,900. SCHOOL, P. S. 127, Purdy and St. Raymond Aves., NEW YORK, N. Y. Bd. Educ., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 8. (Correction—contractors address). CD 12/11, under CA.

John W. Ryan Co., 369 Lexington Ave., New York 17, N. Y. CA. Approx. $800,000. CHURCH and SCHOOL, 481 W. 204 St., NEW YORK, N. Y. Roman Catholic Church of St. Jude, 189 Sherman Ave., New York 34, N. Y. CD 7/6.

Ceasar DeChiccis, Clairton, Pa., LB Approx. $825,000. Senior HIGH SCHOOL, BETHEL, PA. Municipal Auth. of Bethel, Bethel, Pa., CD 8/2.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Tenn., Nashville—RUNWAY EXTEN.—B.A. 1/3—Tennessee Air National Guard, Berry Field, exten. North-South Runway at Berry Field. $500,000. CD 9/14.

BIDS ASKED—BUILDINGS

▲ **Va., Bristol**—HOUSING—B.A. 1/8—Bristol Redevelopment & Housing Auth., Bristol, 140 housing units. $1,100,000. Plans deposit $100. Extended date. Clarence Kearfoot, 112 Piedmont St., archt. CD 11/14.

Fla., Jacksonville—SCHOOL—B.A. 1/9—Duval Co. Bd. P. Instruction, 605 Ocean St., James Weldon Johnson Senior High School. Approx. $500,000. Plans deposit $25. CD 12/10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Troup Bros., Inc., 4151 S. Dixie Hy.; Miami, Fla., CA, $695,007, ramp paving, sanitary and storm sewers at Miami International Airport, MIAMI, FLA., Dade Co., Court House, Miami, Fla. Bids Nov. 20. CD 11/29, under LB.

▲† **J. A. Jones Constr. Co.**, P. O. Box 966, Charlotte, N. C. and **Charles H. Tompkins Co.**, 907 16th St. N. W. Wash. 6, D. C. LB $9,164,098, est. $8,936,000. construct Old Hickory Lock and Dam, Cumberland River, Davidson City, CIVENG 40-058-52-58, TENNESSE, U. S. Eng., 303 U. S. Court House, Nashville, Tenn. Bids Dec. 12. CD 10/30.

BUILDINGS

LOW BIDS AND CONTRACTS

Eugene Simpson & Bros., 2 W. Walnut St., Alexandria, Va., CA. $998,270, COUNTY COURT HOUSE, FAIRFAX, VA. Fairfax Co., Court House, Fairfax, Va. Bids Oct. 24. CD 10/29, under LB.

▲ **Duke Const. Corp.**, Military Hy. and Bell Rd., Norfolk, Va., Owner Builds. Approx. $2,100,000. 77 APARTMENTS, NORFOLK, VA.

J. C. Stockton & Son, Augusta, Ga., CA, $821,000. HOSPITAL addns., alterations, AUGUSTA GA. University Hospital Auth., c/o Scroggs & Ewing, archts., 1331 Green St., Augusta, Ga. Bids Oct. 23. CD 10/29, under LB.

Brennan Constr. Co., 5600 N.W. 7 Ave., Miami, Fla., CA, $500,000, HIGH SCHOOL JACKSONVILLE, FLA. Assumption Church, 2431 Atlantic Blvd., Jacksonville, Fla.

MIDDLE WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **INDIANA**—State Hy. Comn., Indianapolis.

Olinger Constr. Co., Huntingburg, Ind., LB $486,510, est. $565,798, paving 2.244 mi. State Rd. 41 south of Princeton, Gibson Co.; LB $703,836, est. $826,763, paving 30.72 mi. east of Ft Branca, Gibson Co.

Wm. D. Vogel Constr. Co., 3710 E. St. Clair St., Indianapolis 1, Ind. LB, $771,888, est. $851,830, c-conc. 3.691 mi. State Rd. 41 s.w. of Youngstown, Vigo Co.

L. H. Gunsaullus & Son, Kendallville, Ind., LB $62,220, est. $66,824, paving 5.906 mi. n. of State Rd. 224 west of Monroe, Adams Co. Bids Dec. 11. CD 11/19.

INDIANA—State Hy. Comn., State House Annex, Indianapolis, Zone 4.

Smith & Johnson, 1799 Kentucky Ave., Indianapolis 21, Ind., LB $623,030, 8 span 550 ft. rein.-con. girder and open spandrel arch bridge, 28 ft. roadway, two 2 ft. walks over Mill Creek 1.563 mi. bit. compated aggregate surf., Owen Co. Bids Dec. 11. CD 11/21.

▲ **Bryant & Detwiler Co.**, 2304 Penobscot Bldg., Detroit, Mich. CA $3,273,000. Contr. NE-2, Substructures, foundations, misc. structures for Northeast Pumping and Water Purification Plant, E. Eight Mile Rd., DETROIT, MICH. City, R. K. Williams, pres. Water Bd., 735 Randolph St., Detroit 26, Mich. Bids Nov. 28. CD 11/12.

BUILDINGS

LOW BIDS AND CONTRACTS

Scandroli Constr. Co., 823 N. Madison St., Rockford, Ill., CA, $500,000, FACTORY, MARENGO, Ill. Arnold Eng. Co., Railroad Ave., Marengo, Ill. Awarded Dec. 7. CD 11/21.

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. CA $1,250,000. 1 story, brick, block PLANT, Plymouth Rd., DETROIT, MICH. Nash-Kelvinator Co., 14250 Plymouth Rd., Detroit, Mich. Bids Oct. 30. CD 10/23.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Tex., Fort Worth**—SHOP, etc.—B.A. 1/4—U. S. Eng., 1127 Texas & Pacific Bldg., 120x180 ft. box and crate shop, Approx. $275,000; 40,000 sq. ft. rein.-con. aprons, $145,000. Inv. No. ENG 41-443-52-6; 200x432 ft. classification and MHE shop, Approx. $800,000. CD 10/31.

▲† **Tex., Lackland Air Base (Br. San Antonio)**—RECORDS and PROCESSING BLDG.—B.A. 1/4-U. S. Eng., 606 Santa Fe Bldg., Galveston, 78,000 sq. ft. wooden frame records and processing bldg., Inv. No. ENG 41-243-52-19. $1,000,000. Extended date. CD 11/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **San Jacinto Equipment Co.**, 1107 St. and **Elmer C. Gardner, Inc.**, 2704 Sachett St., Houston, Tex., LB $6,216,295, San Jacinto River Dam, HOUSTON, TEX. City, City Hall, 900 Brazos St., Houston, Tex., Bids Dec. 11. CD 10/24.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hagstrom Constr. Co.**, 1567 Selby Ave., St. Paul, Minn. LB $2,594,000, est. $2,500,000. 300 unit HOUSING 30 and Burdette Sts., OMAHA, NEB. Omaha Houstin Auth., 1401 N. 22 St., Omaha, Neb., Bids Dec. 10. CD 11/13.

▲ **Robert E. McKee General Contractor, Inc.**, 1918 Texas St., El Paso, Tex., LB $1,017,400. HOSPITAL, EL PASO, TEX. Hotel Dieu Hospital, c/o Sister Mathilde, administrator, 1014 N. Stanton St., El Paso, Tex. Bids Dec. 7. CD 11/26.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Torrance**—City, 1511 Cravens Ave., $2,000,000 bond election Jan. 8, imprv. water sys., 4 mi. 24 in. steel or concrete mains, 14 mi. 6- to 12-in. c.i. pipe. James M. Montgomery, 16 N. Oakland St., Pasadena, consult. engr. CD 9/25/46.

La., Sulphur—Town, voted $850,000 bonds, water and sanitary sewer imprvs. CD 11/13.

▲ **Minn., Crystal**—Village, B. E. Scott, clk., defeated proposal Nov. 19 to authorize construction municipal WW sys. $1,338,700. Pfeifer & Shultz, 702 Wesley Temple Bldg., Minneapolis, consult. engrs. CD 11/9.

I. C., Salisbury—City, voted bonds, WW imprvs. $653,000. CD 10/16 under Sewers, Waste Disposal.

▲ **Wash., Mount Vernon**—Skagit County Public Utility Dist., Mount Vernon, expanding Cultus mountain water supply system, enlarging, deepening Judy Reservoir and constr. 30 in. pipeline from reservoir to Anacortes $4,000,000; distr. lines to other points in Skagit Co., $1,000,000. CD 6/30/47.

BRIDGES

▲ **TEXAS and LOUISIANA**—Sabine Lake Bridge & Causeway Auth., Port Arthur, Tex., toll bridge to connect Port Arthur, Tex. with State of Louisiana, incl. 1,800 ft. hydraulic fill roadway and 204 ft., steel concrete bridge with turn-table sect., Port Arthur, Tex. $2,500,000. M. D. Gates & J. B. Converse, Port Arthur, Tex., consult. engrs.

STREETS AND ROADS

▲ **CONNECTICUT**—State Hy. Dpt., State Office Bldg., Hartford, Conn., engaged H. W. Lochner & Co., consult. engrs., 150 N. Wacker Dr., Chicago, Ill., to make surveys for Fairfield County Thruway to connect with New York State Thruway at Greenwich, $20,000,000. CD 10/2/44.

▲ **MICHIGAN**—State Hy. Comn., 222 Townsend St., Lansing, Zone 13,

Wayne Co.—concrete paving major hys. in Detroit, incl. wid'n. sections of 7 Mile and 8 Mile Rds. $6,000,000. Harry C. Coons, c/o owner, engr.

Mo., Joplin—City, Joplin, and State Hy. Dpt., Jefferson City, wid'n east 7 St. into 4-lane trafficway, carrying U. S. Hy. 66 and 166, $500,000.

▲ **NEW HAMPSHIRE**—State P. Wks. & Hys. Dpt., State House, Concord.

Campton—1.5 mi. 24 ft. road mix pavement with 4 ft. gravel shoulders, Rte. 3 from approx. 2.75 mi. north of Plymouth-Campton town line northerly to south end of FAP No. 209-F (1). TLR 14173, P-2123, $120,000.

Canterbury-Loudon-Gilmanton—2.4 mi. 24 ft. road mix pavement with 8 ft. gravel shoulders and bridge over Soucok River on N. H. Rte. 106 from approx. 1.3 mi. north of southern Loudon-Canterbury town line and running northerly 2.4 mi., the alinement follows existing road for whole length, Highway TLR 14182, P-2149, $300,000.

Conway—approx. 1 mi. 24 ft. surfaced treated grav. pavement with 4 ft. shoulders on Kearsarge Rd. in North Conway from junction of Mechanic St. and northerly to Intervale Rd., Highway SAC 1652, S-2214, $80,000.

Franklin—0.9 mi. 24 in. road mixed pavement with 12 ft. shoulders on N. H. Rte. 3-A and running northerly, overpass over existing road and railroad tracks to replace existing narrow underpass, Highway UGI 219 (15), P-1984, $100,000.

Green's Grant—1.5 mi. 24 ft. road mix with 4 ft. shoulders, channel change of the Peabody River, 35 ft. span rein.-con. arched frame bridge over Nineteen mile Brook—10-ft. span rein.-con. flat slab bridge and 7x4 ft. box culvert exten. Highway F 247 (2), P-1905, $120,000.

Hinsdale—approx. 0.2 mi. 24 ft. surfaced treated grav. pavement with 4 ft. shoulders, new bridge over the canal on N. H. Rte. 119, Highway S51 (2), P-1947, $100,000.

Lebanon—0.44 mi. 24 ft. surfaced treated grav. pavement with 4 ft. shoulders following existing alinement except for a 600 ft. relocation on which a new bridge to be built over Blood's Brook, N. H. Rte. 12-A, Highway S 49 (2), S 2243 and Bridge, $150,000.

Road C-2297-A and Bridge C-2297-B, on U. S. Rte. 4 from intersection of Campbell and Bank Sts. in Lebanon westerly around both sides of Colburn Park to junction of Mascoma St., over Mascoma St. to junction with Mechanic St., approx. 0.6 mi., incl. 500 ft. approach on Hanover St., grading, draining, widening, new bridge over Mascoma River and a plant mix pavement, UI 201 (14), $200,000.

Milan—approx. 0.2 mi. 22 ft. road mix with 4 ft. shoulders on improved alinement on Rte. 110 from approx. 0.6 mi. southeast of Dummer-Milan Townline running northeasterly. Bridge over North Branch of Ammonoosuc River, S 99 (6), P-2122, $100,000.

Milford-Wilton—resurf., wid'n. and plant mix pavement 1.1 mi. N. H. Rte. 101 from approx. 0.4 mi. east of Milford-Wiltontown line and running westerly, TLR 14185, P-2225, $75,000.

Milton—2.4 mi. 24 ft. road mix pavement with 8 ft. shoulders on N. H. Rte. 16 from approx. 16. mi. north of Rochester-Milton town line and running northerly, an overpass over south crossing of Boston & Maine R. R. tracks, TLR 14177, S-2172, $250,000.

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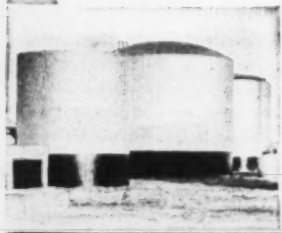

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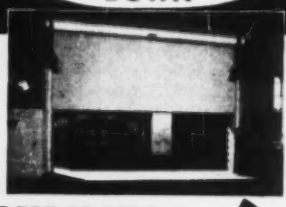

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New Hampton-Meredith—4.3 mi. 22 ft. surfaced treated grav. pavement with 4 ft. shoulders on N. H. Rte. 104 from east junction of N. H. Rte. 3-B and running easterly, approx. 9/10 of project is on relocation. S. 20 (2), S-2121, $400,000.

Pembroke-Epsom—4.8 mi. 24 ft. pavement with 4 ft. shoulders on N. H. Rte. 28 from approx. 1 mi. south of Pembroke-Epsom town line and running northeasterly the 4.8 mi. to a point approx. 0.3 mi. south of Epsom Traffic Circle, TLR 14175, P-1998, $400,000.

Peterboro—3 mi. 24 ft. road mix pavement with 4 ft. grav. shoulders on U. S. Rte. 202, from approx. 1 mi. northeast of Jeffrey-Peterboro town line running northeasterly, TLR 14179, P-1996, $80,000.

Piermont—1.4 mi. 24 ft. surfaced treated grav. pavement with 4 ft. shoulders, N. H. Rte. 10 from 1.2 mi. north of Orford-Piermont town line running northerly, bridge over Eastman Brook and interchange of short sect. of Lake Tarleton Rd. with Eastman Brook, TLR 14181, P-2143, $175,000.

Plaistow-Kingston—approx. 3.4 mi. 24 ft. road mix with 4 ft. grav. shoulders on N. H. Rte. 125 from approx. 0.1 mi. south of Plaistow-Kingston town line running northerly, 14 ft. rein.-con. slab bridge on existing abutments at Station 129 plus. S. 3 (2), S-1939, $400,000.

Somersworth—grading, wid'n. pavement to minimum width of 44 ft., and construct plant mix pavement on Main St. in city of Somersworth, from junction of High St. and running southerly 0.45 mi. to junction of Franklin St., U-302 (1), C-2305, $60,000.

Stark—0.8 mi. 22 ft. road mix pavement with 4 ft. grav. shoulders on N. H. Rte. 110 from approx. 0.3 mi. west of Dummer-Stark town line and running westerly relocating channel of Ammonoosuc River, approx. 230 ft. S. 99(2), P-1738, $100,000.

Swanzey—approx. 3.9 mi. with 2 major relocations of approx. 1.25 mi. each, 24 ft. road mix pavement with 4 ft. shoulders on N. H. Rte. 10 from approx. 0.9 mi. north of Winchester-Swanzey town line and running northerly, S. 276 (3), P-2030, $350,000.

Warner-Bradford—2.1 mi. 24 ft. surface treated grav. pavement with 4 ft. grav. shoulders on fdn. of sand and gravel course, 3 major relocation near beginning and minor one near its end totalling approx. 60% of length, N. H. Rte. 103, from approx. 0.6 mi. east of Warner-Bradford town line and running westerly. 2 minor relocations of Warner River Channel. F. 243 (2), F. 29 (2), P-1956, $180,000. R. H. Whitaker, c/o owner, engr.

▲ New York—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany.

Cattaraugus Co.—6.4 mi. Arterial Route System, incl. bridge over Allegheny River, $2,842,000.

EARTHWORK, WATERWAYS

▲ Tex., Gregory—Reynolds Metals Co., Gregory, 7-mile deep water canal from Aluminum plant at Gregory to Gulf Coast, $1,500,000.

AIRPORTS

▲† Me., Limestone—HOUSING—U. S. Eng., 857 Commonwealth Ave., Boston, plans by Eaton W. Tarbell & Assoc., 84 Harlow St., Bangor. 240 housing units, Limestone Air Force Base, $2,000,000. CD 9/19.

▲ Mo., St. Louis—ADMINISTRATION BLDG.—City, c/o St. Louis Municipal Airport, Comm., Conway B. Briscoe, chn., 311 City Hall, Zone 3, plans by Hellmuth, Yamasaki & Leinweber, International Office Bldg., 722 Chestnut St., Zone 1, administration bldg. at Lambert-St. Louis Municipal Airport, adjacent to Natural Bridge and airport roads, Robertson, St. Louis Co. $1,500,000. Landrum & Brown, 111 E. 4 St., Cincinnati, O., engrs. consult for economic and space requirement study. CD 6/12/44.

▲† N. Y., Westhampton—AIRPORT IMPRVS.—U. S. Eng., 80 Lafayette St., New York. Zone 13, plans by William Gehron, Weiskopf & Pickworth, 101 Park Ave., New York, Zone 17, maintenance hangar, guard house, storage and refrigerator bldgs., $1,511,000; five units of family housing, $80,000, at Suffolk Air Force Base. CD 9/14.

LATIN AMERICA

Brazil, Minas Gerais—Schneider Syndicate, Rio de Janeiro, plans truck factory, $500,000.

Colombia, Zipaquira—Syndicate, c/o Banco de la Republica, Bogota, plans salt plant to produce 63,000 tons iodized salt per year. 5,000,000 Pesos.

Mexico, San Luis Potosi—State Govt., Palacio del Estado, San Luis Potosi, S.L.P., plans 20,000 seat stadium, $600,000.

PUBLIC BUILDINGS

▲† Ark., Shumaker—DEPOT—Naval Ammunition Depot, c/o Geo. M. Gans, commander, Shumaker, addnl. magazines $20,000,000; addnl. store houses $13,000,000, both at Naval Ammunition Depot. Peyton & Boskorth, Continental-American Bldg., and E. M. Freeman & Assocs., Texas Eastern Bldg., Shreveport, La., consult. engrs. and archts. CD 12/6.

Ark., Texarkana—SCHOOL—Texarkana School Dist., 10 and Pecan Sts., plans by Reinhelmer & Cox, Texarkana Natl. Bank Bldg., Texarbana high school $601,040. CD 4/23.

▲ Calif., Los Angeles—SCHOOL—City Bd. Educ., 1425 S. San Pedro St., $200,000,000 bond election June 3, school construction. A. S. Nibecker, Jr., c/o owner, engr.

▲ Calif., San Francisco—HOUSING—San Francisco Housing Auth., 440 Turk St., plans by Spencer & Ambrose, 251 Kearny St., San Francisco, 608-unit housing in Western Addition Area, $7,000,000. CD 5/4.

Calif., Santa Clara—SCHOOLS—Santa Clara City Elementary School Dist., 1553 Bird Ave., San Jose, $850,000 bond election in February 1952 schools and additions. CD 11/27.

▲ Calif., Stockton—WAREHOUSE—Stockton Port Dist., Elmo Ferrari, direc., Stockton, warehouse and new transit shed, $1,600,000. Ellis E. Eckland, 123 N. Eldorado St., structural engr. CD 5/13/49.

▲ Conn., Hartford—HOUSING—City Housing Auth., 846 Asylum Ave., plans by Carl Malmfeldt & Assoc., 36 Pearl St., three 10 story HOUSING 15 acre tract next to Kenley Park between Barbour St. and Waverly covering both sides of Pilgard Ave. $4,500,000. CD 9/13/49.

▲ Conn., New London—HOUSING—City Housing Auth., New London, 200 unit housing, $2,000,000. Thomas Worcester Inc., 84 State St., Boston, Mass., engr. and archt. Delbert K. Perry, 17 Court St., New Britain, assoc. archt. CD 10/18.

▲ Conn., Newtown—HOSPITAL—State P. Wks. Comr., State Office Bldg., Hartford, plans by Westcott & Mapes, Inc., 109 Church St., New Haven, hospital addn., Fairfield State Hospital, $5,000,000. CD 11/28.

▲ Conn., Norwich—OCCUPATIONAL THERAPY—State P. Wks. Comr., State Office Bldg., Hartford, Conn., plans by Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, K-56, occupational therapy bldg., Norwich State Hospital, $1,600,000.

▲ Ill., Chicago—DORMITORY, etc.—City, City Hall, Zone 2, City Bridewell Prison, new dormitory, cell house, welfare facilities, medical, dental elements, $4,000,000.

▲ Ill., Midlothian—SCHOOL—School Dist. 228, Midlothian plans by Chas. Wheeler Nicol, 23 E. Jackson St., Chicago, Zone 4, 1 and 2 story Bremen Community High School $1,100,000.

La., Lake Charles—SCHOOL—Calcasieu Parish School Bd., Lake Charles, $700,000 bond electiton Jan. 7, Dist. 30 School.

Me., Fairfield—SURGICAL—State, Dpt. Institutional Services, State Capitol, Augusta, plans by Stanley S. Merrill, 9 Vine St., Auburn, 2 story, 52x157 ft., 55x56 ft. wing, brick, concrete surgical bldg., $500,000.

▲ Mass., Lowell—HOUSING—Lowell Housing Auth., 562 Market St., plans by Krokyn & Browne, 184 Boylston St., Boston, housing, South End Sect. in neighborhood of Gorham St., Union-Summer and Winters Sts. $3,880,000. CD 11/14. 162 housing units, Chelmsford St., site, $1,740,000. CD 8/15, under B.A.

▲ Mich., Ann Arbor—PRISON—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, brick, steel, concrete state prison. Medium Security Institution for Young Prisoners. $5,000,000.

Mich., Berrien Springs—SCHOOL—Berrien Springs Bd. Educ., plans by Maurer & Maurer, engrs and archts., 312 Lafayette Bldg., South Bend, Ind., 2 story, bsmnt., brick, steel school, $500,000. CD 11/26.

▲ Mo., St. Louis—SCHOOL—Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., Zone 1, high school, incl. adjacent auditorium and field house for white children. $6,000,000. CD 6/11.

▲ N. J., Camp Kilmer—BARRACKS, etc.—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., plans by Tectonic Assocs., Somerville, 4,000 enlisted men barracks and mess. $5,137,000.

▲† N. J., Fort Monmouth—LABORATORY—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., Signal Corps R and D Laboratory, $5,690,000. Ballinger & Co., 121 N. Broad St., Phila., Pa., consult. engrs.

† N. J., Raritan—ARSENAL—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., shop storage and ammunition renovation facilities at Raritan Arsenal. $974,000. Frank Grad, 48 Commerce St., Newark, N. J., consult. engr.

▲ N. Y., Brooklyn—HOUSING—New York City Housing Auth., 63 Park Row, New York, Zone 38, plans by Carson & Lundin, 50 Rockefeller Plaza, New York, Zone 20, fifteen 7 story apartments on site bounded by Linden Blvd., Fountain Ave., Euclid and Sutter Aves. $13,800,000.

▲ N. Y., New Rochelle—SCHOOLS—City, City Hall, 515 Main St., voted $1,900,000 bonds Trinity School, Pelham Rd., North Ave. and Church St., voted $360,000 bonds, Henry Barnard School addns.

Pa., Aliquippa—SCHOOL—School Dist. of Raccoon and Hopewell Twps., Aliquippa, plans by B. J. McCandless, 239 Fourth St., Ellwood City, Consolidated Grade School, Raccoon Twp., near here, $500,000.

Pa., Munhall—SCHOOL—School Dist. of Munhall, Munhall, plans by D. Roderick Jones, 135 E. 8 St., Homestead, 1 and 2 story, brick on tile Woodlawn Grade School, $668,000. Bonds voted. CD 1/29/51.

▲ S. C., Charleston—HOUSING—Charleston Housing Auth., 20 Franklin St., 500 addnl. housing units, $6,000,000. CD 8/29/49.

S. C., Chester—HIGH SCHOOL—City, high school, $600,000. CD 2/17/47.

▲ Tex., Dallas—SCHOOL—Dallas Independent School Dist., 3700 Ross Ave., plans by Bennett & Crittenden, 2812 Fairmount St., Stephen F. Foster 800-student capacity school. $1,200,000. CD 9/23/49.

Tex., Mexia—WARD BLDG.—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts. Austin,

(Continued on page 56)

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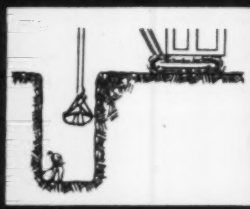

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(Continued from page 54)

plans by Wiltshire & Fisher, 4703 Ross Ave., Dallas, senile patients ward bldg. unit. $800,000. Walter C. Moore, supvr. archt. for owner. CD 10/23.

▲ Tex., Odessa—SCHOOLS—Ector County Independent School Dist., Odessa, plans by Wilson & Patterson, 202 Majestic Bldg., Fort Worth, No. 1, elementary school, $475,000; No. 2, new elementary school, $550,000; high school and some elementary addns., $625,000; CD 12/12.

Wash., Everett—COURTHOUSE—Snohomish Co., Court House plans by Decker & Christenson, 1411 4 Ave. Bldg., Seattle, Zone 1, enlarging, and remodernizing courthouse. $500,000.

Wash., Yakima—SCHOOL—School Dist. 7, Yakima, Junior High School, $960,000. CD 1/16/46.

W. Va., Charleston—HOSPITAL—Charleston General Hospital, Brooks St. and Elmwood Ave., plans by Griefe & Daley, Payne Bldg., hospital addn. Approx. $750,000.

▲ Wis., Madison—BACTERIOLOGY, etc.—University of Wisconsin, Madison, plans by Roger C. Kirchhoff, state archt., Madison, bacteriology bldg., $1,700,000; greenhouse $360,000.

Alaska, Juneau—MUNICIPAL—City, City Hall voted bonds Dec. 6, municipal bldg., $579,000. Foss & Malcolm, Goldstein Bldg., archts.

▲ Philippine Islands, Lucena—PLANT—National Development Co., Manila, coconut wallboard plant. $4,000,000.

▲ Philippine Islands, Lucena—PLANT—National Deopment Co., Manila, cotton textile mill to mfg. staple fibre, transparent wrapping material and tire cords. $3,500,000.

▲ Alta., Calgary—SCHOOL—School Bd. G. R. Gell, secy., Calgary, Junior High School to serve both Hillhurst and North Hill Districts, $800,000; elementary school to serve Killarney District, $350,000; elementary school to serve Elboya District, $350,000. CD 3/24/44.

Ont., Kitchener—HOUSING—R. P. Opie, engr., Central Mortgage & Housing Corp., 441 Queen's Quay W., Toronto, 2B, Ont., 90 housing units, $837,000. CD 3/17/48.

▲ Ont., London—MEDICAL—Dpt. Veterans Affairs, Ottawa, Ont., plans by G. Brault, Dpt. P. Wks., Hunter Bldg., Ottawa, medical bldg. at Westminister Military Hospital, south of here. Approx. $3,000,000. CD 3/20.

▲ Que., Lachute—HOSPITAL—Town, plans by G. D. Thompson, 1241 Guy St., Montreal, Que. 60-bed Argenteuil Hospital, near Brownsburg Rd., Approx. $1,250,000. Rev. Soeurs Hospitalieres de la Providence, will operate. Neergaard, Agnew & Craig, 134 Bloor St. W., Toronto, Ont., engrs. CD 9/20.

COMMERCIAL BUILDINGS

▲ Calif., Los Angeles—HOSPITAL—Monte Sano Foundation and Los Angeles Memorial Hospital Corp., c/o Stiles Clements, archt., Van Nuys Bldg., osteropathic hospital, Beaudry and Sunset Blvd. $2,000,000.

▲ Calif., Van Nuys—DWELLINGS—Sherman Park Development Co., 1150 S. Beverly Dr., Beverly Hills, plans by Edward H. Fickett, 5657 Wilshire Blvd., Los Angeles, 619 frame, stucco dwellings in Van Nuys District, $5,798,000.

Ill., Naperville — LIBRARY — North Central College Naperville, plans by Gustave Orth, 520 N. Michigan Ave., Chicago, Zone 11, library, $500,000.

▲ Mass., Boston—RESIDENCE—Young Women's Christian Assn., 140 Clarendon St., plans by Kilham, Hopkins, Greeley & Brodie, 9 Arlington St., 7 story, bsmnt., brick residence for young women. Berkeley St., $1,000,000.

Mass., Springfield—SYNAGOGUE—Beth-El Temple, 150 ft., Pleasant St., plans by Percival Goodman, 19 E. 48 St., New York, N. Y., synagogue, Dickinson St. opposite Forest Park, $550,000. CD 7/26.

Mass., Worcester—CLUB HOUSE—Worcester Girls Club, 67 Lincoln St., plans by Kilham, Hopkins, Greeley & Brodie, 9 Arlington St., Boston, club house, Providence and Winthrop Sts., $500,000. CD 12/15/50.

▲ Mich., Detroit—HOUSING—U.S. Eng., 520 Merchandise Mart, Merchandise Mart Plaza, Chicago 54, Ill., construct, manage, finance housing facilities, Center Line, $1,000,000. Eberle M. Smith Assoc., 153 E. Elizabeth St., Detroit, archts.

N. Y., New York—APARTMENT—Trustees, Series C-2 Mortgage, c/o Emery Roth & Sons, archts., 18 E. 48 St., Zone 17, apartment alterations, 893-899 Park Ave. $650,000.

Okla., Bartlesville—SANCTUARY—M. E. Church, Bartlesville, plans by Coston & Frankfurt, 323 E. Madison St., Oklahoma City, sanctuary, $500,000.

▲ Pa., Pittsburgh—CATHEDRAL and CHANCERY—Pittsburgh Diocese of Byzantine Slav Rite, S. Riverview Ave., plans by Wm. Richard Perry, 2882 W. Liberty St., 1 and 3 story bsmnt., stone, granite cathedral and chancery, $2,000,000.

▲ Tex., Corpus Christi—HOSPITAL—Crippled Childrens Hospital, c/o Mrs. Sam E. Wilson, Wilson Bldg., plans by Richard S. Colley, 310 S. Tancahua St., hospital, 20-acre tract Airline Rd. and Almeda St. $1,000,000.

▲ Tex., Houston—DWELLINGS—Miles Strickland & Assoc., 1504 Fannin St., plans by Robert Hill, 1220 W. 20 St., Sect. 1, Job. No. 1, 40 frame dwellings, concrete slab fdn., $320,000; Job. No. 2, 54 cedar shake dwellings, concrete slab fdn., $400,000; Job. No. 3, 38 cedar shake, frame dwellings, concrete slab fdn., $304,000, all foregoing in Wild Rose Gardens,

off Airline Superhighway; Sect. No. 2, Job. 1, frame type dwellings, $650,000; Job. 2, cedar shake, asbestos siding dwellings, concrete slab fdn., $725,000; Job. 3, frame, cedar shake, asbestos siding dwellings, $750,000 all foregoing in an extension of Wild Rose Gardens, near Tidwell Rd.

INDUSTRIAL BUILDINGS

Ill., Chicago—BAKERY—National Baking Co., 2610 S. Calumet St., bakery, State St. and 14 Pl. $700,000.

Ind., Indianapolis—PLANT—P. R. Mallory Co., 7315 E. Washington St., Zone 3, 2 plant addns., one on Washington St. and other on English Ave., $500,000. CD 11/28/50.

▲ **Mich., Bay City**—FOUNDRY—Bay City Foundry Div. Dow Chemical Co., 932 Fisher Bldg., Detroit, 100x900 ft. foundry addn., incl. laboratory, $2,500,000.

▲ **Mich., Bay City**—PLANT—Dow Chemical Co., 932 Fisher Bldg., Detroit, magnesium fusion parts plant, alterations, renovations, $1,000,000.

▲ **Mo., Kansas City**—WAREHOUSE, etc.—John Deere Plow Co., c/o H. B. Pence, vice pres. and gen. mgr., 13 and Hickory Sts., Kansas City 6, Mo., 160,000 sq. ft. warehouse facilities, display sales, office, shipping on 20 acre tract at 85 St. and U.S. Hy. 71, $1,500,000.

N. C., Greensboro—WAREHOUSE—Edgecomb Steel Co., 527 Atando Ave., Charlotte, warehouse, $500,000.

▲ **Tex., Aromex**—PLANT—J. M. Huber Corp., Oil & Gas Bldg., Houston, carbon black plant, $2,211,242.

Tex., Dallas—PLANTS—American Iron & Metals, Inc., 2215 Latimer St., plant unit for handling scrap steel, $111,500; plant unit for handling scrap iron, melting, etc. $494,000.

▲ **Tex., Fort Worth**—PLANT—Chicago Pneumatic Tool Co., c/o James L. Lewis, asst. to pres., 75 E. Wacker Dr., Chicago, Ill., 1 story, masonry, 120,000 sq. ft. plant, $3,500,000.

▲ **Tex., Sweeny**—REFINERY—Phillips Petroleum Co., City Natl. Bank Bldg., Houston, expansion refinery for production of quantities aromatics suitable in production aviation gasoline, $18,805,000.

▲ **W. Va., Albright**—PLANT—Freeport Coal Co., Morgantown, coal tipple and processing plant, $2,500,000. A. F. Castanole, W. Va. Bldg., Huntington, consult. engr. CD 11/1.

▲ **B. C., Vancouver**—PULP MILL—Canadian Western Lumber Co., Ltd., 355 Burrard St., sulphate pulp mill for undisclosed location in British Columbia, $21,000,000.

▲ **B. C., Vancouver**—PULP MILL—Elks Falls Co. Ltd., c/o Pacific Mills Ltd., foot of Campbell St. and Canadian Wester Co., 355 Burrad St., pulp mill, Approx. $21,000,000.

▲ **Ont., Cornwall**—PLANT—Courtaulds (Canada) Ltd., Montreal Rd., plant expansion, $5,000,000. Robt. A. Rankin & Co., 1649 Burnside Pl., Montreal, Que., engrs. CD 11/21/50.

▲ **Ont., Dryden**—PLANT—Dryden Paper Co., Canada Cement Bldg., Montreal, Que., paper mill expansion, $2,000,000. CD 5/5/50.

▲ **Ont., St. Catherines**—PLANT—Thompson Products Ltd., St. Catherines, plant, $4,000,000.

Ont., Toronto—FACTORY—American Smelting & Refining Co., 120 Broadway, New York, N. Y., U. S. A., factory on 17 acre site, in Scarborough Industrial Area on Birchmount Rd. north of Eglinton Ave. E.

▲ **Ont., Welland**—PLANT EXPANSION—Atlas Steels Ltd., 417 Main St. E., plans by R. I. Macbeth St. Catharines, Ont., plant expansion and imprvs. incl. hot and cold strip mill, tube mill $6,000,000. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, Ont., engrs. CD 10/5/50.

▲ **Que., Villeneuve**—CEMENT PLANT—Atlas Realties Co., c/o A. Viau, Dpt Trade & Industry, Quebec City, 1,485 ft. long, main cement plant, Approx. $5,000,000.

UNCLASSIFIED

Calif., San Francisco—RECREATION AREA—City and San Francisco Co., Dpt. P. Wks., City Hall, plans by Wm. G. Merchant, 57 Post St., recreation area in Sunset Community Center incl. tennis courts, bleachers, field house, etc. $750,000. CD 11/13/47.

Louisiana — RURAL DISTRIBUTION LINES — Claiborne Electric Co-operative, Homer, 136 mi. rural distr. lines, sys. imprvs., Claiborne Co. $910,000.

Nebraska — RURAL DISTRIBUTION LINES — Elkhorn Rural Public Power Dist., Battle Creek, rural distr. lines, sys. imprvs., Madison Co. $420,000. H. S. Nixon Eng. Co., W. O. W. Bldg., Omaha, consult. engr.

▲ † **N. Y., Buffalo**—WIND TUNNEL—U. S. Eng., 80 Lafayette St., New York, Zone 13, modernization wind tunnel at Cornell Aero Laboratory, $1,500,000. Cornell Aeronautical Laboratory, 4455 Genessee St., Cheektowaga, Buffalo, N. Y., consult engr.

Tenn., Millington — TELEPHONE LINES — Millington Telephone Co., Millington, telephone lines, $750,000.

Texas—OIL PIPE LINE—Shell Pipe Line Corp., Shell Bldg., Houston, 66 mi. 8 in. crude oil pipe line between Gohlke and LaGrange, $475,000. CD 5/28/47.

▲ **Que., Villeneuve**—WHARF—Atlas Realties Co., c/o A. Viau, dpt. Trade & Industry, Quebec City, Que. 2,500 ft. wharf at cement plant. Approx. $3,650,000. CD 6/20, under Que., Beauport East.

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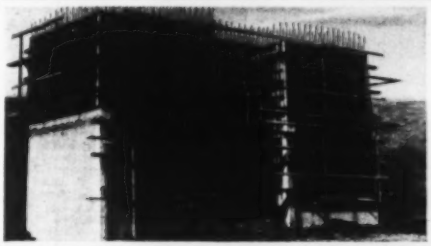

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CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Mass., Boston—B.A. 1/3—State, Metropolitan Dist. Comn., Sewerage Div., 20 Pemberton St., Sect. 131, exten. relief sewer, 8,916 ft. 48 in. rein.-con. pipe-CC, Needham and Wellesley. $500,000. Plans deposit $10. CD 5/12/44.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW HAMPSHIRE—State Dpt. P. Wks. & Hys., Concord, **Frank Palazzi & Sons, Inc.**, 2321 Hartford Ave., Johnston, R. I., CA $634,101, grading, drainage, road mix pavement 3.753 mi. N.H. 101, towns of Milford and Wilton, F 233 (1). CD 12/11, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Vara Constr., Inc.**, 718 Huntington Ave., Roxbury, Mass. CA $1,128,273. HOSPITAL, Lynnfield St., LYNN, MASS. Union Hospital, 25 Linwood Rd., Lynn, Mass. CD 11/20, under LB.

▲ **Grande & Son, Inc.**, 425 A Broadway, Everett, Mass. CA $1,082,608. H-203, Contr. 1, OUT PATIENT X-RAY and LABORATORY bldg., Pondville State Hospital, NORFOLK, MASS. State, Dpt. P. Health, 512 State House, Boston, Mass. CD 11/1, under LB.

▲ **United Engineers & Constructors**, 1401 Arch St., Phila. Pa., CA $20,000,000 (2-yr. program) design and construct electric GENERATING PLANT expansion, South St., PROVIDENCE, R. I. Narragansett Electric Co., 49 Westminster St., Providence, R. I. CD 12/6, under CA.

▲ **Wadhams & May Co.**, 15 Lewis St., Hartford, Conn., CA, $1,286,098, Vocational Technical SCHOOL, Watertown Ave., B/A-R-83, WATERBURY, CONN State P. Wks., Dpt. State Office Bldg., Hartford, Conn. Bids Oct. 31, awarded Dec. 5. CD 11/7, under LB

▲ **Massacoe Builders, Inc.**, Meadow Plains R. D. Simsbury, Conn., LB, $1,129,774, Gordon C. Swift Junior High SCHOOL, WATERTOWN, CONN. Town, Watertown, Conn. Bids Dec. 11. CD 12/7.

The Roncoir Builders, Inc., Windsor Locks, Conn., Owner Builds, $700,000, 100 prefabricated HOUSES, Old County Manor, WINDSOR LOCKS, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS

January 8 New Jersey — January 9 New York

BIDS ASKED BUILDINGS

▲ **N. J., Jersey City**—HOUSING—B.A. 1/3—Jersey City Housing Auth., 514 Newark Ave., 664 family housing Project N. J. 9-9, 7 bldgs., Duncan Ave. $8,000,000. CD 6/27/50.

▲ **N. Y., Yonkers**—HIGH SCHOOL—B.A. 1/3—Bd. Educ., Admin. Bldg., 138 S. Broadway, Junior and Senior High School, Kneeland Ave., $2,000,000.

▲† **N. J., Fort Monmouth**—SCHOOL—B.A. 1/4—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., school. Extended date. CD 11/23.

▲ **N. Y., New Rochelle**—SCHOOL—B.A. 1/7—Bd. Educ., 131 Huguenot St., school, Daisy Farms, off Wilmot Rd. $1,300,000. CD 12/14.

▲† **D. C., Wash.**—HOUSING—Bids Asked—National Capital Housing Auth., 1728 L St. N. W., Wash. 25, D. C. Proj. DC-1-17, approx. 190 units in 20 Buildings, in Northeast Washington, adjacent to Richardson School, at 53 and Blaine Sts. N. E. incl. Squares 5236 and 5237 between 53 St. and 54 St. with lots in Squares 5238 and 5239 about the west side of 53 St., Proj. DC-1-16, 256 dwelling units in 26 buildings, in Southeast Washington in vicinity of 8 St. Wheeler Road and Valley Avenue S. E. and consists of Parcels 216/53 and 236/97, 237/15, Lots 27 through 35 in Square 5925, Lots 25 through 58 in Square 6123, portion of Lot 803 in Square 6124.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Oakhill Constr. Co., Inc., 74-20 Caldwell St., Maspeth, N. Y., CA $560,285, storm sewers, Oceana St., 48 Ave., 210 St., etc., Queens Boro, NEW YORK. President Queens Boro, 102-55 Queens Blvd., Kew Gardens 15, N. Y. Bids Nov. 29. CD 12/4, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg.

Central Pennsylvania Quarry, Stripping & Constr. Co., 270 Pine St., Hazleton, Pa., LB $386,937, 2.17 mi. rein.-con pavement, 22 ft. wide from Osterburg, south toward Cessna and extens. existing rein.-con. structure, T.R. 220, Bedford Co.;

Harry C. Erb, Inc., 29 Bala Ave., Bala, Pa., LB $1,439,408 1.16 mi. divided highway of two 24-ft. concrete lanes on bridge across Pennsylvania R.R. and canal and two 24-ft. lanes of bit. surf. with concrete divisor and earth median connecting with Lincoln Hy. T.R1 Bucks Co.;

Latrobe Road Constr. Inc., P.O. Box 150, Latrobe, Pa., LB $77,311, wid'n., bit. surf., rebuild existing shoulders 1.65 mi. T.R. 981, Westmoreland Co.;

Mack Paving & Constr. Co., "C" and Luzerne Sts., Phila. 24, Pa., LB $92,579, wid'n. pavement and bit. surf. 0.37 mi. T.R. 611, Lackawanna Trail, Montgomery Co.;

J. Paul Laubach, Box C, Benton, Pa., LB $197,457, wid'n., relocate to eliminate hazardous curves approaching bridge and railroad 1.11 mi., one rein.-con. bridge, one I-beam bridge and bit. surf. T.R. 14, Bradford Co.;

Livengood, Inc., R.D. 2, Wainutport, Pa., LB $664,477, 1.53 mi. four-lane highway under Lehigh Valley R.R. bridge with bit. surf. on either side of concrete divisor, T.R. 45, Schuylkill Co. Bids Dec. 14. CD 11/26.

† **Malan Plumbing & Heating Co.**, 25-09 42 Rd., Long Island City, N. Y. CA $713,000, tank farm, utilities and grading, Phila. Naval Base, NOY 28849, Spec. 30488, MECHANICSBURG, PA. Dpt. Navy, Pub. Wks. Office, Phila. Naval Base, Phila., Pa. Bids Nov. 13. CD 12/14, under LB.

▲ **Hughes Foulkrod Co.**, Schuff Bldg., Phila., Pa., CA $2,087,000. Sewage disposal project, primary settling tanks and appurtenant works, Southeast Treatment Works, PHILA., PA. Dpt. P. Wks., City Hall Annex, Phila., Pa. Bids Dec. 4. CD 11/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Newbridge Terrace Homes**, c/o Stanley Klein, arght., 89-31 161 St., Jamaica, N. Y. Owner Builds, $1,800,000, 189 HOUSES on 44-acre tract, HICKSVILLE, N. Y.

▲ **Gerace & Castagna**, 155-10 Jamaica Ave., Jamaica, N. Y. CA. $2,304,000. superstructure 150-bed general HOSPITAL on 12 acre site, MANHASSET, N. Y. North Shore Community Hospital, c/o Isidore Rosenfield, archt., 23 W. 47 St., New York 19, N. Y. Bids Nov. 30. CD 11/28.

▲ **Paul Tishman Co., Inc.**, 21 E. 70 St., New York 21, N. Y. CA. $7,587,490, general constr.

Harry Starkman & Bros., 348 Brook Ave., New York 54, N. Y., CA. $1,149,182, heating and ventilating.

John G. Heliman & Co., Inc., 391 Fulton St., Brooklyn 1, N. Y. CA. $646,990, electrical work.

Far Plumbing Co., 2108 Crotona Parkway, New York 60, N. Y., CA. $1,279,420, plumbing for Bronxdale Houses Proj. No. NY-5-22 in area bounded generally by Watson, Leland and Soundview Aves. and Bruckner Blvd., Bronx Boro, NEW YORK, N. Y. New York City Housing Auth., 63 Park Row, New York 38, N. Y. Grand total $10,663,082. Bids Nov. 9. CD 11/13, under LB.

▲ **R. H. Toth Engineering & Barnett D. Singer & Assoc.**, 25 Howard St., Hopelawn, N. J., CA, $1,500,000 construct, manage and finance, 156 HOUSING units at Naval Supply Depot, BAYONNE, N. J. P. Wks. Office, Third Naval Dist., 90 Church St., New York, 7, N. Y. Bids July 18. CD 6/27.

▲ **Bieznak Bros.**, 814 N. Broad St., Phila., Pa., CA $1,835,000, construct, manage and finance 230 HOUSING units, at Naval Air Station LAKEHURST, N. J. P. Wks. Officer, Phila. Naval Base, Phila., Pa. Bids Sept. 21. CD 10/17, under LB.

▲ **Louis Mancinelli**, 17 and Erie Ave., Phila., Pa., Separate Contracts, $3,750,000, RESIDENTIAL DEVELOPMENT Monmouth Rd., MOUNT HOLLY, N. J.

Ralph H. Woelfel, Cedar and Holly Ave., Hazleton, Pa., CA. $612,155, Elementary SCHOOL and paving work, BLOOMSBURG, PA. Bloomsburg Municipal Auth., Bloomsburg, Pa., Ballinger & Co., 121 N. Broad St., Phila., Pa., archt. Bids Dec. 5. CD 11/27.

▲ **Blaw-Knox Co.** (Chemical Plants Div.), 321 Penn Ave., Pittsburgh, Pa., CA. Est. $1,000,000. PILOT PLANT, LIBRARY, PA. Pittsburgh Consolidation Coal Co., Koppers Bldg., Pittsburgh. CD 4/17/47, under Pa., Liberty.

▲ **David-Warren Constr. Co.**, 141 Garrett Rd., Upper Darby, Pa., Separate Contracts. $1,250,000. RESIDENTIAL DEVELOPMENT, S St. and 66 Ave., PHILA. PA. Jack Swerman, 405 Market St., Chester, Pa., archt.

▲ **Crafton Tomes, Inc.**, Gorgas Lane and Sedgewick St., Phila., Pa., Separate Contracts. $1,000,000. RESIDENTIAL DEVELOPMENT, Whitaker and Ruscomb St., PHILA., PA.

▲ **Philip Plotnick & Sons**, Manheim and Schuyler St., Phila., Pa., Separate Contracts. $2,000,000, RESIDENTIAL DEVELOPMENTS, Tomlinson Rd., etc. $500,000, Knorr and Longshore Sts., $300,000; Coulter St., etc., PHILA., PA. Grand total $2,800,000.

▲ **Joseph E. Heffernan**, Guilford St. and Rowhand Ave., Phila., Pa., Separate Contracts. Approx. $1,500,000. RESIDENTIAL DEVELOPMENT, Parkview Rd., etc., PHILA., PA.

▲ **F. A. Collins, Inc.**, 527 Welsh St., Chester, Pa., Separate Contracts. $2,000,000. RESIDENTIAL DEVELOPMENT, King St., POTTSTOWN, PA.

D. M. Fontana Constr. Co., 112 A St., Wilmington, Del., CA, $552,005. SCHOOL, CLAYMONT, DEL. Claymont Special School Dist., Claymont, Del. CD 10/19.

Haddock Constr. Co., Elsmere, Wilmington, Del., CA, $654,983, SCHOOL, Delaware, Gilpin and Grant Aves., and Bancroft Parkway, WILMINGTON, DEL. Bd. Educ., 11 and Wollaston Sts., Wilmington, Del. Geo. E. Pope & Albert Kruse, Elks Bldg., Wilmington, archts. CD 3/11/46.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS

January 3, 9 Louisiana — January 8 Virginia

▲† **Florida**—B.A. 1/8—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., gated spillway, powerhouse and switchyard at Jim Woodruff Dam on Apalachicola River near Chattahoochee. Extended date. CD 11/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Georgia—Alabama Paving Co.**, 2011 Andrews Rd., Columbus, Ga., LB, $1,379,598, addnl. airfield paving and pavement overlay at Mac Dill Air Force Base Inv. 52-59, TAMPA, FLA. U. S. Eng., P. O. Box 4970 Jacksonville, Fla. Bids Dec. 11. CD 11/9.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

T. L. James & Co., Ruston, La. LB $1,114,203. b. conc. 6.907 mi. Bayou Manchac-Nesser Hy., State Rte. 1500, S. P. 7-08-02 and 7-09-15, F. A. Proj. F. I. 379 (2), F. O. 366 (6), Ascension and East Baton Rouge Parishes. Bids Dec. 12. CD 11/29.

Roland Constr. Co., Box 850, Alexandria, La. CA $775,292. sanitary sewers, pump stations;

Kolter Constr. Co., 612 Tradesman National Bank, Oklahoma City, Okla. CA $287,866. sewage treatment plant, overhauling existing sewage treatment plant, RUSTON, LA. Town, Ruston, La. Bids Dec. 11 CD 11/29.

▲ **TENNESSEE**—State Hy. Dpt., Nashville,

H. E. Wolfe Constr. Co., St. Augustine, Fla., LB $732,193. crushed stone surf. 6.491 mi. sect. State Rte. 26 from point 1 mi. southwest of Doweltown and extending to Smithville, Proj. F 026-1-(8), DeKalb Co.;

Adams, Constr. Co., Johnson City, Tenn., LB $86,832, crushed stone surf., 2.807 mi. sect. of Secondary Rte. 2431 from Secondary Rte. 2430 near Bats Creek bridge and extending eastward to State Rte. 72, 2 mi. north of Vonore, Proj. S-2431 (1); 1.931 mi. sect. of Secondary Rte. 2432 from point approx. 7 mi. east of Sweetwater and extending to Secondary Rte. 2430 near Eve Mills, Proj. No. 1. S-2432 (2), Monroe Co.;

Harrison Constr. Co., Maryville, Tenn., LB $346,683, wid'n., bit. materials resurf. 12.1 mi. sect. of State Hy. 33 from junction of State Rte. No. 68 in Madisonville and extending eastward to Monroe-Loudon Co. line, Proj. No. SAP-943-A, Monroe Co.;

W. A. Ledbetter Constr. Co., Lexington, Tenn., LB $118,822, grav. or chert surf., construct 1 bridge on sect. of Secondary Rte. 8095, from Trezevant and extending to Weakley Co. line 6.944 mi. Proj. No. S-8095 (2), Carroll Co.; LB $73,407, crushed stone, grav. or chert surf., construct one bridge 4.551 mi. sect. of Secondary Rte. 8095 from Carroll Co. line near Christmasville and extending northward to State Rte. No. 124 at Pillowville, Proj. No. S-8095 (1), Weakley Co.;

Malone Bros., Greenville, Tenn., LB $103,081, crushed stone surf. 7.541 mi. sect. Secondary Rte. 2469 from Secondary Rte. 2468, 2 mi. north of Oak Grove and extending towards White Pine, Proj. No. S-2469 (1), Jefferson Co.;

Marion Constr. Co., Craighead Ave., Nashville, Tenn., LB $83,754, crushed stone surf. 3.352 mi. sect. Secondary Rte. No. 6182 from 5½ mi. east of Franklin near Clovercroft and extending to approx. 3 mi. west of Nolensville, Proj. No. S-6182 (2), Williamson Co.;

W. P. McClanahan, Centerville, Tenn., LB $104,954, grav. or chert surf. 5.407 mi., construct 3 concrete box type bridges sect. of Secondary Rte. No. 8024 from State Rte. 1 near Hollow Rock and extending northward to Vale, Proj. No. S-8024 (1), Carroll Co.;

McDowell & McDowell, 699 Murfreesboro Rd., Nashville, Tenn., LB $118,999, crushed stone surf., construct 2 bridges 5.076 mi. sect. of Secondary Rte. 6159 from State Rte. 10 at Bairds Mill and extending westward to Old Central Pike, Proj. No. S-6159 (2), Wilson Co.;

J. B. Michael Co., 1021 Heywood St., Memphis, Tenn., LB $695,133, grav. surf., construct 5 bridges 3.917 mi. State Rte. 14 from point approx. 4 mi north of Raleigh and extending to Pleasant Ridge Rd., Proj. No. F-014-2-(10), Shelby Co.;

Ralph E. Mills Constr. Co., 410 Ann St., Frankfort, Ky., LB $155,348, crushed stone and bit. materials or c. conc. paving, construct curb, gutters and sidewalks 0.742 mi. sect. of State Rte. 34 in Jefferson City, Proj. No. F-034-1-(17), Jefferson Co.;

C. R. Pickle & Son, Shelbyville, Tenn., LB $75,857, crushed stone surf. 4.427 mi. sect. of Secondary Rte. No. 4262 from State Rte. 111 and extending westwards towards Bone Cave, Proj. No. S-4262 (2), Van Buren Co., LB $69,977, crushed stone surf. 4.028 mi. sect. of Secondary Rte. 4289 from Wartrace and extending to Bellbuckle, Proj. No. S-4289 (5), Bedford Co.;

Ralph Rogers Co., 1507 Marwood Lane, Nashville, Tenn., LB $426,761, wid'n bit. materials resurf. 13.897 mi. sect. of State Hy. 2 from Gum and extending to Noahs Fork Creek, Proj. No. SAP-945-A, Rutherford and Coffee Counties;

C. F. Rule Constr. Co., 217 13 Ave. N., Nashville, Tenn., LB $292,964, gravel or chert surf. construct 5 bridges 8.487 mi. sect. of Secondary Rte. 8081 from point approx. 5½ mi. north of Middleton and extending northward to Rte. 15 near Hornsby, Proj. No. S-8081 (2), Hardeman Co.;

Stacy Bros. Co., Johnson City, Tenn., LB $789,391, conc. or bit. materials, paving, construct curb, gutters and sidewalks, and one bridge on relocation of State Rte. 1, 2.396 mi. through Rockwood, Proj. No. FI-001-7-(22), Roane Co.;

Summers-Taylor Paving Co., Johnson City, Tenn., LB $198,920, crushed stone surf. 9.349 mi. sect. of Secondary Rte. 2453 from State Rte. 81 near Nolichucky River and extending northeasterly to Johnson City, Proj. No. S-2453 (1), Washington Co.;

Wesco Paving Co., Volunteer Bldg., Chattanooga, Tenn., LB $156,887, bit. materials resurf. 3.427 mi. sect. of State Hy. 2 from junction of Rtes. 2 and 38 and extending to Broad St. in Chattanooga, Proj. No. SAP-944-A, Hamilton Co.;

Edward G. Wise, Chattanooga, Tenn., LB $88,499, crushed stone surf., construct 3 bridges 0.996 mi. sect. of Secondary Rte. 4304 from Nicajack Creek approx. 5½ mi. east of South Pittsburg and extending to near Shellmound, Proj. No. S-4304 (3), Marion Co. Bids Dec. 14. CD 11/26.

BUILDINGS

LOW BIDS AND CONTRACTS

Roberts & Schaefer Co., 130 N. Wells St., Chicago, Ill., CA, $750,000, tipple washery and carbon coal processing PLANT, RED JACKET, W. VA. Red Jacket Coal Corp., Red Jacket, W. Va.

▲ **Anaconda Properties Inc.**, Fort Lauderdale, Fla., CA $2,800,000, construct, manage and finance 392-unit HOUSING, GREEN COVE SPRINGS, FLA. Dist. P. Wks., Office, P. O. Box 465, Naval Base, S. C. CD 11/20, under LB.

Dyson & Co., 806 W. Romana St., Pensacola, Fla., LB $747,400, HIGH SCHOOL, PENSACOLA, FLA. Escambia Co. Bd. P. Instruction, Pensacola, Fla.

▲ **G. E. Bass & Co.**, P. O. Box 1033, Jackson, Miss., CA $2,071,033, Project ALA 77-2, 340 HOUSING units, TUSCALOOSA, ALA. Tuscaloosa Housing Auth., Tuscaloosa, Ala. Bids Dec. 12. CD 12/18, under LB.

Loborana Constr. Co., 174 S. Boulevard St., Baton Rouge, La. CA $750,000. 90 HOUSING units, ALEXANDRIA, LA. Rapides Development Corp., c/o contractor.

▲ **Bossier City Contg. Co.**, Bossier City, La. CA $1,500,000. 200 HOUSING units, LEESVILLE, LA. Lee Hill Homes, Inc., c/o contractor.

▲ **Perkins & Gray**, Ashland, Ky. LB $1,471,252. Proj. 1.

Burdett Land, Richmond, Ky. LB $355,500. Proj. 2. HOUSING units, RICHMOND, KY. Richmond Housing Comn., Richmond, Ky. Bids Dec. 6. CD 1/30.

J. M. O'Brien Constr. Co., Exchange Bldg., Memphis, Tenn., LB $797,570. 70-bed steel, concrete HOSPITAL, PARIS, TENN. Henry Co., Paris, Tenn., Bids Dec. 11. CD 11/23.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Ill., Clifton—SCHOOL—B.A. 1/4—School Dist. 4, Clifton, 1 story, part bsmnt. high school, incl. water lines, sewage disposal plant. $675,000. Ralph Legeman, 10 Chestnut St., Evansville, Ind., archt.

▲ Ill., Chicago—APARTMENTS—Bids Asked—J. T. and D. M. Schlees, Dorchester Park Apartments, four 1700 unit apartment bldgs. $17,000,000. Monroe Bowman & Assoc., 221 N. La Salle St., Zone 1, archts. Contractor did not proceed. CD 8/22, under CA.

Ill., Chicago—APARTMENT—Bids Asked—Saul LeVee & Assoc., c/o Loewenberg & Loewenberg, archts., 11 W. Monroe St., Chicago, Zone 3, apartment. $900,000. CD 5/11/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15

Lombardo Bros. Constr. Co., 3600 Ridge Rd., Cleveland, O., CA $1,032,112, est. 1,086,340, Type T-71, Parts 1 and 2, grading, draining, paving, S. R. 57, Lorain Co.;

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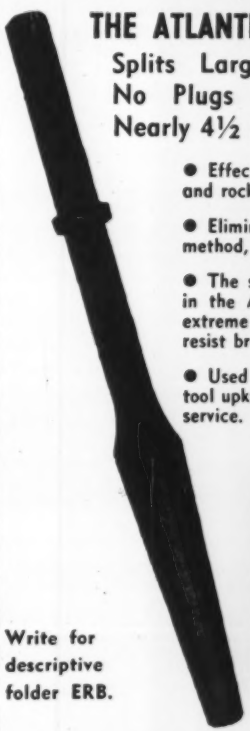

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MANUFACTURERS OF THE "CEMENT GUN"

Arthur S. Langenderfer, Inc., 4690 W. Bancroft St., Toledo, O., CA. **$206,580**, est. $235,000. Type T-35 surf. S. R. 249, Defiance Co.;

Kent Bros. Co., 22 E Gay St., Columbus, O., CA. **$119,495**, est. $123,900. Type T-35 and structure, S. R. 256, Thurston, Fairfield Co.;

John Hill contg. Co., 491 Lexington Ave., Mansfield, O., CA. **$316,600**, est. $302,000. Type T-35 on B-20 and steel, concrete structure, U. S. R. 224, at Poland, Mahoning Co.;

Nelson T. Bahan, 549 E. Court St., Urbana, O., CA. **$234,927**, est. $262,700. Type T-35 on B-11 and 2 steel, concrete structures, S. R. 47, Parts 1 and 2, Logan Co.;

Great Lakes Constr. Co., 2201 Mulberry St., Cleveland O., CA. $115,100, est. $112,380. Type T-35 and concrete structure, S. R. 306, Portage Co.;

Kane O'Horo & Haenny, Inc., 65 W. Indianola Ave., Youngstown, O., CA. **$619,782**, est. $602,100, Type T-35 and T-71, S. R. 90, at Youngstown, Trumbull Co.;

Wander & Macon, Inc., 72 W. Riverglen Dr., Worthington, O., CA. $207,388, est. $210,200. Type T-32 on B-20 and concrete structure, S. R. 93, Tuscarawas Co.;

Harper Supply, Inc., 118 W. Front St., Napoleon, O., CA. **$214,042**, est. $210,370. Type T-35 and concrete structure, Parts 1 and 2, U. S. R. 33, Van Wert and Mercer Counties;

W. J. Seidensticker, 209 S. High St., Columbus, O., CA. **$207,569**, est. $239,200. Type T-32 on B-20 and 2 steel, concrete structures, Parts 1 and 2, S. R. 67, S.R. 37 at Marseilles, Wyandot Co.;

Mercer Constr. Corp., 1220 National Bank Bldg., Lima, O., CA. **$113,495**, est. $127,100. Type T-35 on B-20 and concrete structure, U. S. R. 224, Putnam Co. and total $1,387,190. Bids Dec. 4. CD 11/26.

▲ **V. N. Holderman & Sons, Inc.**, 890 Oakland Park Ave., Columbus, O., LB **$1,575,985**, airport improvs., incl. grading, drainage, paving, exten. east-west runway to 6,500 ft., installing high intensity lighting, seeding and landscaping, at Port Columbus, COLUMBUS, O. City, City Hall, Columbus, O. Bids Dec. 11. CD 11/28.

▲ **Great Lakes Dredge & Dock Co.**, 122 S. Michigan Ave., Chicago, Ill., LB **$6,597,510**, 6,450 ft. perimeter cofferdam incl. removing present wood pipe and stone jetties, erect engineers field house, 700-000 cu. yd. dredging, placing 360,000 cu. yd. clay core, 280,000 lin. ft. sheet piling, etc., for Northside Filtration Plant, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Dec. 14. CD 12/12, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Heller-Murray Co.**, 222 W. Rayen Ave., Youngstown, O., CA. **$1,200,000**. TELEPHONE BUILDING addn., YOUNGSTOWN, O. Ohio Bell Telephone Co., 101 W. Boardman St., Youngstown, O.

▲ **B. W. Constr. Co.**, 39 S. La Salle St., Chicago, Ill., LB. **$4,712,000**, 65 two story, 50 unit, concrete block wall ROW HOUSE BLDGS., Altegeld Gardens Extension, 130 and Corliss Sts., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago, Ill. Bids Dec. 4. CD 11/2.

▲ **Francis J. Corr Co., Inc.**, 1120 Sheridan St., Lansing, Mich., CA. $2,737,075, rebuilding 6 story, brick, steel state OFFICE, removal of 2 top stories, LANSING, MICH., State, A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich. CD 12/4, under LB.

General Electric Co., 1400 Book Bldg., Detroit, Mich., CA. $742,338. Total est. $6,000,000. POWER PLANT, incl. circuit breakers, transformers, substation and accessories, LANSING, MICH. City, Bd. Water & Electric Light Comn., City Hall, Lansing, Mich. Bids Nov. 26. CD 11/16.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 4—Missouri
STREETS AND ROADS
January 4—Missouri

BIDS ASKED—BUILDINGS

▲ **Tex., Austin**—HIGH SCHOOL—B.A. 1/8—Austin Independent School Dist., Austin, West Austin Junior-High School. $1,200,000. Arthur Fehr & Charles Granger, 502 E. 5 St., archts. CD 9/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Carl M. Halvorsen, Inc.**, Builders Exchange Bldg., Portland, Ore., LB **$977,491**, total est. $1,190,000. Contr. W-14, water sys. improvs.; LB **$132,200**, Contr. W-12 with alternates;

Northwestern Engineering Co., Rapid City, S. D. LB **$129,000**. Contr. W-12 without alternates, water sys. improvs., MILES CITY, MONT. City, Miles City, Mont. Bids Dec. 10. CD 11/16.

▲ **WYOMING**—State Hy. Comn., Cheyenne.
Big Horn Constr. Co., Sheridan, Wyo., CA. **$707,914**. stabilize base course, plant mix surf., 1-three continuous rein.-con. girder span bridge and misc. work 10.41 mi. from Gillette East on Gillette-Moorecroft Rd., Campbell Co., Proj. FI-120 (8);

Leach Bros., 212 Hynds Bldg., Cheyenne, Wyo., CA **$199,448**, grading, draining, base course surf. 4. T.T. bridges and misc. work on 4.584 mi. Upton-Hay Creek Road, Weston Co., Proj. S-80(1).

Taggart Constr. Co., P.O. Box 560, Cody, Wyo., CA, **$209,231**, est. $192,283. grading, draining, three 23 ft. T.T. spans over Corrall Cree., five 23 ft. T.T. spans over Bates Creeks, 3 T.T. single span passes and misc. work on 7.478 mi. Bates Creek Medicine Bow Road, Proj. S-50 (5), Natrona Co. Bids Dec. 6. Grand total $1,114,593.

BUILDINGS

LOW BIDS AND CONTRACTS

White Development Corp., Thomas J. White, 7817 Maplewood St., Industrial Court, Maplewood 17, Mo. Owner Builds. $500,000. two approx. 67,000 sq. ft. COMMERCIAL BUILDINGS, west side of Brentwood Blvd., north of Manchester Rd., BRENTWOOD (ST. LOUIS 17, P. O.), MO. Cay G. Weinel, 3837 W. Pine Blvd., St. Louis 8, Mo., archt.

Kelly-Nelson Constr. Co., Cotton Exchange Bldg., Little Rock, Ark., CA, **$600,000**, Processing PLANT, LITTLE ROCK, ARK. Terry Dairy Co., 1801 Scott St., Little Rock, Ark. Ginocchio, Cronwell & Assoc., Hall Bldg., Little Rock, Ark., archts.

Cook Homes, Inc., 5033 Seward St., Omaha, Neb. Owner Builds. $500,000. 25 DWELLINGS, OMAHA, NEB.

▲† **Hagstrom Constr. Co.**, 1567 Selby Ave., St. Paul, Minn., CA. **$2,594,000**, est. $2,500,000. 300 unit HOUSING, 30 and Burdette St., OMAHA, NEB. Omaha Housing Auth., 1401 N. 22 St., Omaha, Neb. Bids Dec. 10. CD 12/17, under LB.

Moore Constr. Co., 125 Riverside Dr., Austin, Tex., CA. Approx. $600,000. Newspaper PLANT, AUSTIN, TEX. Newspapers, Inc., 308 Guadalupe St., Austin, Tex. CD 11/20.

Young & Pratt, 1818 Fredericksburg Rd., Auston, Tex., CA. **$545,495**, mechanical work for LAW Bldg., AUSTIN, TEX. University of Texas, c/o Office of Business & Finance, University Admin. Bldg., Austin, Tex. Bids Dec. 5, awarded Dec. 12. CD 12/13, under CA.

O'Rourke Constr. Co., Box 5384, Dallas, Tex., LB Approx. $589,000, est. $550,000. Bakery PLANT, DALLAS, TEX., Mrs. Baird Bakeries, Inc., 1401 N. Carroll St., Dallas, Tex. Bids Nov. 27, CD 11/23.

▲ **Leonard Constr. Co.**, 37 S. Wabash St., Chicago 3, Ill., CA. $1,750,000. Sulphuric acid chemical PLANT, PORT ARTHUR, TEX. Gulf Oil Corp., Port Arthur, Tex. Awarded Dec. 10. CD 11/15.

F. J. Kirchhof Constr. Co., 700 Lawrence St., Denver, Colo., CA, **$766,682**, construction, completion of arena and exhibition bldg., City AUDITORIUM IMPRVS., DENVER, COLO. City and Denver Co., City and County Bldg., Denver, Colo. Bids Nov. 27, awarded Dec. 4. CD 12/16, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
January 4—Washington

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. A. Terterling & Sons, Inc.**, 4011 Fairview Ave., Boise, Idaho, CA, **$1,242,700**, driving twin 30 ft. diam. diversion tunnels, one 1,584 ft. long and other 1,210 ft. long, excav. open cuts at the two portals, Palisades Proj. on south fork on Snake River in Bonneville Co. Spec. DS 3586, IDAHO. Bureau Reclamation, Dpt. Interior, City Bldg., Idaho Falls, Idaho. Bids Nov. 27. CD 11/30, under LB.

† **Cooper-Bessemer Co.**, Mount Vernon, O., CA **$586,230**, three 1000-kw and two 600-kw diesel generating units for standby power plant at Jim Creek Naval Communications Station. Specs. 30491, ARLINGTON, WASH. Yards & Docks, Dpt. Navy, Arlington, Va. Bids Nov. 15. CD 11/8.

▲ **M. A. Pithoud**, Route 5, Box 248, Vancouver, Wash., CA, **$1,745,130**, 19.5 mi. 230-kv double-circuit steel tower transmission line for Skagit Project, SEATTLE, WASH. City, County-City Bldg., Seattle, Wash. Bids Dec. 5. CD 12/11, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles.
Webb & White, 7220½ Melrose Ave., Los Angeles, Calif., LB. **$1,370,550**, grading, etc. 0.7 mi. Hollywood Freeway between Hollywood Blvd. and Western Ave., Los Angeles Co.;

Nappe Constr. Co., 1160I Cantara St., North Hollywood, Calif., LB, **$265,768**, road construction 0.9 mi. Laguna Canyon Rd., between Forest Ave. in Laguna Beach and 2 mi. north of Canyon Acres Dr., Orange Co. Bids Dec. 13. CD 11/21.

† **James H. McFarland**, 101 Tara St., San Francisco, Calif., LB, Sch. 1, **$487,484**;

Sacramento Electric Works, 835 43 St., Sacramento, Calif., LB, Sch. 2, **$87,083**, 230 kv transmission line, Folsom-Elverta, Spec. DC 3585, CALIFORNIA Bureau Reclamation Dpt. Interior, 2430 J St., Sacramento, Calif. Bids Dec. 13. CD 11/15.

J. S. Barrett, Newport Beach, Calif., LB **$357,034**, Sch. 1;

Robert Vlacich, 2901 Worthen Ave., Los Angeles, Calif., LB, **$116,983**, Sch. 2;

J. S. Barrett, 1300 Coast Hy., Newport Beach, Calif., LB, **$234,810**, Sch. 3, trunk sewer lines in La Palma Ave. east from Euclid Line A and in Ball Rd. east from Euclid Line B, ANAHEIM, CALIF. City Hall, Anaheim, Calif. Bids Dec. 11.

† **A. D. Schader**, 164 Spear St., San Francisco, Calif., LB **$391,741** rehabilitate railroad tracks, Spec. 1595, CAMP BEALE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Dec. 13.

▲ **Rothschild, Raffin & Wierick**, 275 Brannan St., and Pacific Bridge Co., 333 Kearny St., San Francisco, Calif., CA **$1,064,570**, Lake Merced Pumping Station under WD 588, SAN FRANCISCO, CALIF. Public Utilities Comn., City Hall, San Francisco, Calif. Bids Dec. 4, awarded Dec. 11. CD 12/11, under LB.

▲ **Engineers Ltd. Pipeline Co.**, 1723 Webster St., Oakland, Calif., LB, **$2,337,514**, water line from Fleming Hill to proposed Cordelia Reservoir, etc. VALLEJO, CALIF. City, City Hall, Vallejo, Calif. Bids Dec. 10. CD 12/11.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Harsh Investment Corp.**, 374 S.W. Morrison St., Portland, Ore., CA. **$2,767,000**, construct, manage, finance HOUSING, at Hill Air Force Base, HILL FIELD, UTAH. U. S. Eng., 74 New Montgomery St., San Francisco, Calif. CD 9/12, under LB.

▲ **Southwestern Eng. Co.**, 4800 S. Santa Fe St., Vernon, Los Angeles, Calif., CA. **$1,092,700**, design and construct, Houdri flow CATALYTIC CRACKER for refining oil, NORTH SALT LAKE CITY, UTAH. Western States Refining Co., North Salt Lake, Utah. CD 8/12/49.

▲ **Howard S. Wright Co., Inc.**, 407 Yale Ave. N., Seattle, Wash., LB, **$3,423,654**, 5 story, 200x300 ft., rein.-con. engr.-office bldg., SEATTLE, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Wash. Bids Dec. 11. CD 12/4.

▲ **E. A. Hathaway & Co., Inc.**, 1098 S. Fifth St., San Jose, Calif., CA, **$1,196,114**, Manor SCHOOL, Kavanaugh Property, EAST PALO ALTO, CALIF. Ravenswood Elementary School Dist., 523 Donohoe St., East Palo Alto, Calif. Bids Nov. 9, awarded Dec. 10. CD 11/28, under LB.

Midstate Constr. Co., Bank of America Bldg., Fresno, Calif., CA **$597,773**, elementary SCHOOL, on Schields and Sweden Aves., FRESNO, CALIF. Scandinavian Elementary School Dist., 3068 Grant Ave., Fresno, Calif. Bids Nov. 7, awarded Dec. 10. CD 11/15, under LB.

Claude C. Lindsay, 824 Taraval St., San Francisco, Calif., LB. **$883,985**, 96 unit HOUSING, Inv. 136-80005, Army 1 and 136-80006, Army 2, LATHROP, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Dec. 4. CD 11/12.

Tombleson & Huck, 445 Sanborn Rd., Salinas, Calif., CA. **$644,967**, John C. Fremont SCHOOL in Seaside Dist., MONTEREY, CALIF. Monterey City School Dist., 216 Calle Principal, Monterey, Calif. Bids Dec. 11, awarded Dec. 12. CD 11/27.

† **Richard L. Fairless Assocs.**, 426 Fidelity Bldg., Los Angeles, Calif., LB, **$862,872**, 126 family DWELLING UNITS, Naval Magazine, PORT CHICAGO, CALIF. P. Wks. Office, Twelfth Naval Dist. Federal Office Bldg., San Francisco, Calif. Bids Dec. 12. CD 11/15.

A. F. Stewart, 1130 Keith Ave., Berkeley, Calif., LB, **$447,931**, Bohannon Elementary SCHOOL, SAN LORENZO, CALIF. San Lorenzo Elementary School Dist., P.O. Box 5, San Lorenzo, Calif. Bids Dec. 11. CD 12/3.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Alaska**—BARRACKS—B.A. 1/18—U. S. Eng., (APO 942, c/o PM Seattle, Wash.) Anchorage, 3 story barracks, 19,000 sq. ft. converted 500-man barracks, Inv. S95-507-52-32, Elmendorf Air Force Base. Approx. $1,000,000. Plans deposit $25. CD 11/16.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Alexander Constr. Co. Ltd., 10436 81 Ave., Edmonton, Alta., CA, Approx. **$500,000**, standard ground instruction school at R.C.A.F. Station, PENHOLD, ALTA. Defense Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. D. W. Laird, c/o owner, engr.

▲ **Bird Constr. Co. Ltd.**, Sargent and Erin Sts., Winnipeg, Man., CA, **$1,146,472**, barrack block at R.C.A.F. Station, WINNIPEG, MAN. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. D. W. Laird, c/o owner, engr.

▲ **McNamara Constr. Co. Ltd.**, 42 Industrial St., Leaside, (Toronto), Ont. CA Approx. **$4,000,000-$5,000,000** railway line from Port Aux Basques, to St. John's incl. new docking tracking station, freight, express mail icing facilities, constr. causeway between Ford's Island and Mainland, etc., NEWFOUNDLAND. Canadian National Rys., B. Wheelwright, ch. engr., 360 McGill St., Montreal, Que., O. J. McCulloch & Co., 3420 Wilson St., Montreal, Que., engrs. CD 5/11/48.

LATIN AMERICA

BUILDINGS

LOW BIDS AND CONTRACTS

Pemex, Atzcap Otzalco Refinery, Mexico City, Mexico, Own Forces. Approx. $750,000. REFINERY UNIT for desulphurization of gasoline and recover of elemental sulphur, at ATZCAPOTZALCO, near Mexico City, MEXICO.

Proposal Advertisements see pp. 61 & 62

OFFICIAL PROPOSALS

Bids: January 31, 1952

East Hartford Sewage Treatment Plant

Sealed proposals will be received by the Board of Contract and Supply of The Metropolitan District at 115 Broad Street, Hartford, Conn., until 4:15 P.M., Thursday, January 31, 1952, for the construction of the East Hartford Sewage Treatment Plant of The Metropolitan District, complete and in proper operating condition, including the following structures: Covered Grit Channels, Pump House, Covered Sedimentation Tanks, Administration and Filter Building, Covered Elutriation Tank, and Digestion Tanks and Gallery, together with equipment.

Each bidder must file with his bid a certified check or bid bond for 10% of the total bid price, made payable to the Treasurer of The Metropolitan District, and a statement by an authorized officer of a surety company to the effect that it will furnish the requisite performance bond if contract is awarded to the bidder.

Specifications and blank forms of proposal may be obtained at the office of the Chief Engineer of the Bureau of Public Works, 115 Broad Street, Hartford, on and after December 26, 1951.

A deposit of Twenty-Five Dollars will be required on each set of contract plans and documents taken by the bidder. Such deposit will be refunded upon the return of said contract plans and documents, in good condition, within 30 days after the date of the opening of bids.

The right is reserved to reject any or all bids not deemed to the interest of the district.

By: RICHARD DILLON, Clerk

Bids: January 1, 1952.

Installing Pipe in Mohawk River Crossing

SUPPLY MAIN
ADDITIONAL WATER SUPPLY FOR LATHAM WATER DISTRICT, COLONIE, NEW YORK

Sealed Bids will be received by the Town Board of the Town of Colonie, New York on the 24th day of January, 1952 until 7:30 P.M., E.S.T., for unloading, hauling and installing two 16 inch diameter flexible joint cast iron pipe lines across the Mohawk River at Vischer's Ferry, New York and a 24 inch flexible joint cast iron pipe across the Bay in the route of the supply main, as part of the Supply Main for Additional Water Supply for the Latham Water District, Albany County, New York.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Performance Bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, New York, and at the office of Keis & Holroyd, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis & Holroyd, upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set within 30 days will be refunded $20.00.

The Town Board of the Town of Colonie, New York, reserves the right to waive any informalities in or to reject any or all bids.

A Certified Check made payable to the order of the Town of Colonie, in the amount of Five Per Centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town of Colonie, New York, in the amount of the contract, and having as surety thereon, such surety company or companies as are acceptable to the Town of Colonie, New York.

The work will be let in one contract with the cast iron pipe, specials and valves being furnished by others.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

WILLIAM K. SANFORD, Supervisor
KEIS & HOLROYD
Consulting Engineers
Troy, New York
Dated: December 24, 1951.

Bids: January 9, 1952

New York State Highway Works

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., Eastern standard time on Wednesday, January 9, 1952 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects; Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 2				
		LACY KETCHUM, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Oneida	FAS852-1	Steuben-Remsen (Co.Rd.) Proj. S-363(1)	3.99	Bit.Mac.Opt.	$14,000 Plans $15	$261,000
		DISTRICT No. 3				
		WILLIAM ROBINSON, Dist. Engr., Weigh Lock Bldg., Syracuse 1, N. Y.				
Cay., Cort. Onon. Oswe. Sen. Tomp.	R.C.52-3	Tree Removal on 53 Various Highways in Dist. 3	....	Removal of 273 Trees Tree	$800 Plans $10	15,000
		DISTRICT No. 4				
		A. R. MULLIGAN, Dist. Engr., Barge Canal Terminal, Rochester 1, N. Y.				
Monroe	O.T.52-1 R.C.52-1 S.T.52-1	N. Y. State Thruway-Ontario 6.14 Section (Subdivisions 8B & 9) (Access 2.25) Rush-Henrietta S. H. 1283 West Henrietta-Rochester S.H. 62 East River Rd; Middle Rd.; Henrietta-Pittsford T.L. Pinnacle Rd.		9" reinf. Conc. Pvmt. 2 6" = 5.64 Mi. Misc. Work = 2.75 Mi.	$160,000 Plans $50	3,067,000
Monroe	LOSP52-1P	Lake Ontario State Parkway Sect. A (Park & Service Roads in Hamlin Beach State Park)	1.31	Bit.Mac.Ty.1, P.M:	$3,000 Plans $10	51,000
Monroe	FASH52-1 FARC52-4	Winton Road-Seabreeze Pt. 1 Pidge-Rochester-SeaBreeze S. H. 538, Proj. U-1067(1)	2.53	9" Cem. Conc. Pavt. 48'-54' wide = 1.99 Mi. Bit. Mac. Opt. 0.54 Mi.	$80,000 Plans $15	1,414,000
		DISTRICT No. 8				
		J. S. BIXBY Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
West.	R.C.52-5	Bear Mountain Bridge: East Approach S. H. 9297	2.48	Cable Guide Rail Opt.	$700 Plans $10	13,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: January 14, 1952

George Washington Bridge

THE PORT OF NEW YORK AUTHORITY
GEORGE WASHINGTON BRIDGE
WEST 178TH STREET AND WEST 179TH STREET TUNNELS
TRAFFIC SIGNAL SYSTEMS
CONTRACT GWB-120 021

Sealed proposals for furnishing and installing traffic signal systems for the West 178th Street and West 179th Street Tunnels, New York City, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:00 A.M., Monday, Jan. 14, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, December 27, 1951

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3615) will be received by the Bureau of Reclamation, Denver, Colorado, until January 31, 1952, and then publicly opened for furnishing one 275-ton, double-trolley, motor-operated, outdoor traveling crane, and one lifting beam for Folsom Power Plant, Central Valley Project, California. Delivery is desired within 450 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3618) will be received by Bureau of Reclamation, Yuma, Arizona, until January 24, 1952, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, concrete lateral lining, and structures, Unit 1, Mohawk Distribution System, Gila Project. The work is situated approximately 10 miles east of Wellton, Arizona in the vicinity of Roll, Arizona. Principal items are approximately: 373,000 cu.yds., excavation for laterals; 12,240 cu.yds., concrete in lateral lining; 20,800 barrels, furnishing and handling cement; 98,250 lbs., furnishing and installing metal slide gates and radial gates and hoists; 4,600 lin.ft., furnishing and installing various sizes concrete culvert pipe; and other work. Time allowed for completion will be 330 days. For particulars, address Bureau of Reclamation, Yuma, Arizona; or Building 53, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: January 24, 1952

Clearing Reservoir Site, Razing Buildings and Plowing

IN DEVELOPMENT OF ADDITIONAL WATER SUPPLY FROM STONY CREEK FOR THE LATHAM WATER DISTRICT COLONIE, NEW YORK

Sealed bids will be received by the Town Board of the Town of Colonie, New York, until 7:30 P.M., E.S.T., on the 24th day of January, 1952, at the Town Hall, Newtonville, New York, for furnishing all labor, material and equipment and clearing Reservoir site, razing buildings and plowing, etc. for the Development of Additional Water Supply from Stony Creek for the Latham Water District, Colonie, New York. The bids will then be publicly opened and read aloud.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Performance Bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, New York, and at the office of Keis & Holroyd, 257 Broadway, Troy, New York, and copies thereof may be obtained at the office of Keis & Holroyd upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment and any non-bidder upon so returning such plans and specifications within 30 days will be refunded $20.00.

The Town Board of the Town of Colonie, New York, reserves the right to waive any informalities in or to reject any or all bids.

A Certified Check made payable to the order of the Town of Colonie, in the amount of Five Per Centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the Contract is awarded to him, that he will, within 5 days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfilment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town of Colonie, New York, in the amount of the contract and having as surety thereon, such surety company or companies as are acceptable to the Town of Colonie, New York.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

WILLIAM K. SANFORD, Supervisor
Keis & Holroyd
Engineers
Troy, New York
Dated: December 24, 1952.

Bids: January 8, 1952

Adamston-Mantoloking Road

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ADAMSTON-MANTOLOKING ROAD
Construction of Adamston-Mantoloking Road, from Osborne-Adamston Road to Mantoloking Bridge, Brick Township, Ocean County, Federal Aid Secondary Project No. S-178(1). Length 1.683 miles.

Estimated:
- 21,075 cu. yds. Borrow
- 42,052 sq. yds. 8" Gravel Surface
- 530 tons Bituminous Concrete
- 2,117 lin. ft. Drainage
- 40,500 sq. yds. Mixed-in-place Bituminous Surface
- 64,800 gals. Bituminous Material

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, January 8, 1952, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 20 Robbins Street, Toms River, New Jersey. The attention of the bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: January 8, 1952

Construction of Bloomfield Avenue

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

BLOOMFIELD AVENUE
Construction of Bloomfield Avenue from Lake Street to Third Street, including the widening of two bridges, in the City of Newark, Essex County, Federal Aid Secondary Project No. S-126(2). Length 0.263 miles.

Roadway Items

Estimated:
- 6,441 cu. yds. Roadway Excavation
- 5,337 cu. yds. Borrow
- 2,684 sq. yds. 8" Concrete Base
- 1,744 tons Bituminous Concrete
- 1,588 lin. ft. Reinforced Concrete Pipe
- 5,254 lin. ft. Granite & Concrete Curb
- 2,805 sq. yds. Concrete Sidewalk & Island Pavement

Bridge Items
- 1,820 cu. yds. Concrete
- 60,500 lbs. Structural Steel
- 77,428 lbs. Reinforcing Steel
- 1,567 lin. ft. Steel Piles

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, January 8, 1952, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 309 Washington Street, Newark 2, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

SEARCHLIGHT SECTION

This index is published as a convenience to the readers. Every care is taken to make it accurate, but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions

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OFFICIAL PROPOSALS
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Bids: February 1, 1952

Additions to Sewage Treatment Works

Notice is hereby given that sealed bids or proposals for constructing additions to the existing sewage treatment works of the City of York, located on Codorous Creek, north of York, Pa., will be received by the York City Sewer Authority at the City Hall, York, Pa., up to 2:00 P.M. o'clock, E.S.T. on the 1st day of February, 1952 at which time they will be publicly opened and read aloud in the City Hall. The work will be divided into four (4) contracts, as designated as follows:

Contract No. 1—Structural & Mechanical Work
Contract No. 2—Plumbing Work
Contract No. 3—Electrical Work
Contract No. 4—Heating Work

All bids should be addressed to the York City Sewer Authority, City Hall, York Pa., and shall be placed in a sealed envelope sufficiently labeled to indicate that it is a bid for this work, copies of the plans, specifications and other contract documents are on file and open to public inspection and may be procured at the office of Albright & Friel, Inc., Consulting Engineers, 121 South Broad Street, Philadelphia 7, Pennsylvania, and at the office of the City Engineer, City Hall, York, Pa. after Jan. 2, 1952 and sets of the documents may be obtained during any business hour at either the offices of the said Consulting Engineers, or the office of the City Engineer upon paying a deposit of $60.00 for each set of documents. If the documents are returned in good condition within five (5) days after the opening of bids, the full amount of the deposit for one set will be refunded to each actual bidder; and other deposits will be refunded with a deduction of $30.00 to defray the actual cost of reproduction of the sets of the documents. If the said documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A bid bond or certified check made payable to the York City Sewer Authority in the amount of five (5%) percent of the bid must be deposited by each bidder with his bid as a guarantee that in case any contract is awarded to him, he will execute the contract and furnish the bonds required.

The York City Sewer Auth. hereby reserves the right, which is understood and agreed to by all bidders, to refuse and reject any or all bids submitted hereto, and, if the Authority deems it necessary, to readvertise for bids; the said Authority also reserves the right to waive any informality in bids received, but any contract awarded will be to the lowest responsible bidder.

No bid may be withdrawn by the bidder for forty-five (45) days after the scheduled closing time for receipt of bids.

The National Production Authority has assigned a DO-T-8 Rating and a T-8 Allotment to this project.

SAMUEL W. HARBOLD
SECRETARY OF THE AUTHORITY

Date December 20, 1951

U. S. Government

Department of Commerce, Bureau of Public Roads, December 12, 1951. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., JANUARY 17, 1952, for Project 1D13, Colonial Parkway, James City County, Virginia, 0.947 mile asphalt paving through Williamsburg. The approximate quantities of the more important items are as follows: 21,500 cu. yd. Excavation; 4,300 cu. yd. Gravel Base Course; 2,050 tons Type I-1 Hot Asphalt Concrete Pavement, and 4,830 lin. ft. Concrete Pipe. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above. H. J. Spelman, Division Engineer.

Department of Commerce, Bureau of Public Roads, December 11, 1951. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., JANUARY 15, 1952, for Project 1A3, Baltmore-Washington Parkway, Prince Georges County, Maryland, Bridge over Landover Road. The approximate quantities of the more important items are as follows: 13,300 cu. yd. Excavation, 2,940 cu. yd. Cement Concrete, 415,000 lb. Reinforcing Steel, and 20,000 lin. ft. Treated Timber Piling. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the address given above. H. J. Spelman, Division Engineer.

SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT OPPORTUNITIES EQUIPMENT
BUSINESS: USED OR RESALE

UNDISPLAYED RATE

$1.50 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.
POSITION WANTED and Individual Selling Opportunity undisplayed rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.
Replies are forwarded each day as received at each of the offices mentioned without additional charge.
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

The advertising rate $14.25 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
An advertising inch is measured ⅞ inch vertically on one col., 3 col.—3 inches to a page. E.N.R.

New Advertisement received by December 20th will appear in the January 3rd issue.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CHIEF MECHANICAL Engineer wanted. Must be experienced in handling design and production of all mechanical requirements of large commercial architect office. Located in Pacific Northwest. Salary open. Write P-2742, Engineering News-Record.

DESIGNERS FOR highway and bridge work in Rhode Island. Send experience to P. O. Box 814, Providence, Rhode Island.

ENGINEER EXPERIENCED in general municipal work including construction of water and sewer lines, pavements, and drainage facilities, maintenance of streets, public grounds and buildings, to supervise operation of engineering and service departments of rapidly growing residential community in Metropolitan Cleveland. Good pay with opportunity for increase. Submit full resume, stating experience, education, age, availability and salary expected. P-2746, Engineering News-Record.

ENGINEER, MATERIALS. Recent laboratory experience required in testing materials. Field experience necessary in soil exploration and tests of bituminous and concrete pavement. Must be familiar with asphalt, concrete and soils mix design tests. Should be thoroughly familiar with construction of bituminous and concrete pavements for overseas airports. Salary high plus maintenance. Transportation furnished. Send complete details of experience and education to P-2821, Engineering News-Record, 330 W. 42nd St.

ENGINEERS ON Design of water and sewage treatment projects in consulting engineers office, Northwestern Ohio. P-2660, Engineering News-Record.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation, group insurance, good working conditions. Only top quality men. Send complete written information, Bristol Steel & Iron Works, Inc., Bristol, Virginia-Tennessee.

(Continued on page 64)

Notice to Advertisers

Because of the New Year Holiday, January 1st, the "Searchlight" pages of the

January 3rd Issue of

ENGINEERING NEWS-RECORD

Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME
Display and Undisplayed Ads
Thursday, December 20th

PROPOSALS
Thursday, December 27th

WANTED . . .

CONSTRUCTION SUPERINTENDENT

Assignment-Northeast Canada
Salary—from $10,000

Contract Requirements:—Minimum of 20 years in construction field. Previous foreign construction experience preferred. Engineering background helpful. Must be a good organizer able to layout work for Canadian labor.

Write and furnish full information regarding education, training, chronological details of experience. Age, salary expected, references. Small photograph and availability.

No applications considered without foregoing information. All replies will be considered strictly confidential.

P-2648, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

Permanent Positions Open to

ENGINEERS

. . . after training at full-time pay . . . as

Consultants in Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:

P-2807, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEER

C.E. (or M.E.) for construction, design, and drafting of plants and equipment for nationally known milk by-products manufacturers. East Central Wisconsin location. Good position for graduate engineer with an eye to the future. State full qualifications in reply. Photo helpful.

P-2790, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SANITARY ENGINEERS

California offers positions with opportunity for professional advancement. Two years experience related to treatment and disposal of sewage and industrial waste, plus college engineering degree. Salary $376 to $458. Write today. Dept. PH-2, Recruitment Section, State Personnel Board, 1015 L St., Sacramento, Calif.

EXPERIENCED CONSTRUCTION EXECUTIVE

Were you brought up in the construction field?

Have you experienced broad field construction work?

Are you familiar with all phases of office engineering?

Are you able to prepare estimates for bids? Are you accustomed to preparing and letting sub-contracts?

Are you familiar with labor relations work, Union customs and habits?

Are you familiar with all phases of building construction work, progress scheduling, doing field construction work on a large scale?

If you feel qualified to answer the above questions in the affirmative, and are interested in a position in the midwest, address your reply, giving complete data of education, experience, and salary expected to Box

P-2709, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

Your reply will be held in strict confidence. Our present personnel are acquainted with this ad.

Permanent Positions Open to ENGINEERS

. . . after training at full-time pay . . . as

Consultants in Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2447, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

CONCRETE INSPECTOR

Location

El Salvador, Central America

Concrete inspection gravity concrete dam now under construction. Several years experience. 4"-8" aggregate necessary. Living quarters available. Duration of job about one year or longer. Reply, giving experience, photograph, salary desired, etc. to

HARZA ENGINEERING COMPANY
400 W. Madison Street Chicago 6, Ill.

HYDRO-CONSTRUCTION ENGINEERS

Hydro-Construction Engineers with 10 to 15 years experience on hydro-electric power plant construction, wanted by large engineering and construction organization. Also, position available for Assistant Hydro-Construction Engineer. College graduates preferred. Location Pacific Northwest. Submit resume of experience; salary desired, and date available.

P-2555, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

STRUCTURAL ENGINEERING

ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year. Write today.*

WILSON *Engineering Corp.*

College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

DISTRICT MANAGERS WANTED

Midwestern equipment manufacturer needs district managers for distributor and dealer contact and other field sales work in several territories. Full time traveling. Products are truck equipment, roadbuilding and excavating machinery. Applications are invited from qualified men with field sales experience in these lines.

SW-2671, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Illinois

POSITIONS VACANT
(Continued from page 63)

WANTED—CIVIL Engineer graduate, some experience in the use of concrete masonry in the housing field preferred, by long established engineering promotional and educational organization, to be representative in the Metropolitan New York area. Age 25 to 40. Give resume of education, engineering experience, and salary requirements in reply. P-2816, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALES ENGINEER for large concern in construction field. Must have degree in civil engineering. Prefer person having experience in contracting engineers and contractors. Desire resident of Kentucky, as position is located in Louisville. RW-2740, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CIVIL ENGINEER, honor grad., registered, 4 years experience industrial design and construction, 3 years experience technical sales promotion. PW-2799, Engineering News-Record.

CONSTRUCTION SUPT.—Civil Engineer—Age 42. Twenty years experience—Heavy construction—Highway and Flood Control Projects, all types Bituminous Macadam Paving—Sanitary Sewer Systems—Water Distribution. Connection in Mid-west preferred. PW-2797, Engineering News-Record, 520 N. Michigan Ave., Chicago 11, Ill.

MECHANICAL ENGINEER, Twenty-five years experience in Design and Supervision. Wishes position as Plant or Construction Engineer, local or Foreign. PW-2789, Engineering News-Record.

PROJECT MANAGER or Construction Superintendent. 20 years experience in Industrial and Governmental work. Excellent references. PW-2823, Engineering News-Record.

AVAILABLE

GENERAL CONSTRUCTION SUPERINTENDENT

Experienced in highway, airport, U. S. Flood control construction, also all types of concrete and asphalt paving and all types of sewer and water main installations, have knowledge of some bridge and industrial and structural building and remodeling of commercial stores etc. Age 42 years, college graduate, 16 years experience, will travel and relocate. Have also served as Project Manager. I am also cost conscious not afraid of long hours.

Write or Call

J. H. SMITH
144 Westminster Rd. Rochester 7, N. Y.
Telephone Hillside 3472-J

POSITIONS WANTED

REGISTERED C.E. Over 20 years engineering experience. Field and office supervision. Design and construction of earthwork, concrete work, roads, bridges, sewers, etc. Desires new position. South, Midwest or Southwest preferred. PW-2738, Engineering News-Record.

SUCCESSFUL TOP Monumental building and heavy construction man presently in charge of all work for internationally known long established construction company desires immediate change. PW-2585, Engineering News-Record.

SUPERINTENDENT OR Ass't, 30, Graduate, 5 years exp. Indust. Private & Public Works, will travel, car. MOnum. 2-8691, F. B. Manning, 515 W. 110 St., N.Y.C.

WOMAN SEEKS Position—experienced in contracting—heavy equipment rentals, parts and service. Can manage office—Free to travel anywhere—Salary must be good. References and details furnished upon request. PW-2801, Engineering News-Record.

WORK WANTED

Group of Structural Engineers
and steel detailers, headed by Professional Engineer with thirty years experience, desires free lance work, specializing in industrial, chemical and oil refinery structures. WW-2803, Engineering News-Record.

BUSINESS OPPORTUNITY

Professional Engineer
in early thirties seeks active and financial participation with established construction company. Can offer contacts, capital, and experience. BO-2791, Engineering News-Record.

FOR SALE
SMALL CONTRACTING BUSINESS

Due to imminent recall to armed forces of partner, small contracting business in North Texas, specializing in grading, flexible bases, asphalt surfacing, bridges, is now for sale. This business well located for highway and defense construction and has consistently made a profit. Equipment is all current model, principally Caterpillar. Northwest shovel. Possibility that key personnel would continue with new owner.

BO-2687, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

FOR SALE

Civil Engineering & Surveying Business Located in Chicago

Grossing between $70,000 and $80,000 per year. Will pay three principals $10,000 annually per person $30,000 in records, field and office equipment. Asking $60,000. Terms can be arranged.

BO-2817, Engineering News-Record
520 No. Michigan Ave., Chicago, Ill.

ENGINEERS INVENTORS
READ THIS AD:

Nationally known manufacturer wants to buy outright or manufacture on royalty basis, your new design on lightweight steel open web bar joists. New shapes no problem. What have you to offer? Will deal direct or through your representative.

CWW-2599, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

FOR SALE

Adnum Pavers (converted to stone spreaders), machines in nearly new condition, spread to 12 ft. Location New Jersey.

Three Wheel 10 Ton Galion, Buffalo-Springfield and Huber rollers, gas or diesel engine.

Tandem 10 to 12 Ton Galion rollers, gas or diesel.

Madsen 4000 lb. Asphalt Plant with 72" x 30' drier equipped with Hopkins Volcanic low pressure burner, dust collector, and power by Caterpillar Diesel. Two 10,000 gallon insulated hot oil tanks. Littleford 125 H.P. quick steam generator (new August, 1950). This plant was new in July, 1949, and has produced only 50,000 Tons of material. Located in Pennsylvania.

One Bros Roll-O-Pactor 50 Ton, 1800 x 24 tires. New in 1950. In good condition. Located New Jersey.

Two LeTourneau Model L P Scrapers 1800 x 24 tires. Located Meadville, Pa.

Caterpillar No. 12 Patrol, Serial No 9K Series. Located Meadville, Pa.

D-7 Tractor, 3 T Series. Located Portville, N. Y.

S.J.GROVES AND SONS COMPANY

19 Rector St., New York, N. Y.

WHitehall 3-1055

PRE-2 AIR COMPRESSORS

5600 CFM 42 x 25-½ x 930 HP SYN. 138-½ RPM

4750 CFM 48 x 24 x 27 804 HP SYN 150 RPM

3/60/2300 AND CONTROL EXCELLENT CONDITION

XCB AIR COMPRESSOR

1250 CFM 20 x 12-½ x 16 #67121 INGRAND AC OR DC MOTOR, OR DIESEL ENGINE

S. M. DAVIS

510 LaSalle St. St. Louis 4, Mo.

MC-414, Truck CRANE 1949 80' boom 15' jib Power boom hoist

Backhoe attachment for B.E. 22B D6 TRAXCAVATOR #9U1118 Good

3 Hyster D8N Towing Winches

D-6 w/Cable Angledozer #8U1440

Cat D 4 with Hyd. Bull Dozer 7U8100 series

2 #49 FD Euclid Rear Dumps 7700 series

Cat D4 with Angle Dozer & Winch 5T2225

Duo-way Scoopmobile A-1 Condition

Jaeger 105CFM Air compressor. Good

Bucyrus Erie 38B Shovel 3 yrs. Bargain

D7N Hyster Towing Winch

CHAS. M. INGERSOLL

19930 Detroit Rd. Rocky River, Ohio

Edison 1-1010

FOR SALE OR RENT—LATE MODELS

Lorain 80 Diesel 1-¾ cy Shovel & Crane/Dragline
Bucyrus-Erie 38B 1½ cy Shovel, 2 years old
Caterpillar D-7 bulldozer, 3T series
International TD-18 Bulldozer, hydr. rebuilt
International TD-14, hyr. bulldozer, rebuilt
CAT D7 & D8 bottom rollers and other critical CAT & INT'L parts

BENDIX MACHINERY CO., INC.

401 Broadway, New York 13, - Tel: Canal 6-5893

LEN SAYS—In Re-Building equipment, we throw away the wear by replacing worn parts with new ones. This month's "Special" is a good example. Maybe none of the items here meets your present needs. Just write, wire or phone any of our plants—we're sure to have just what you need.

LEN KERN, VICE PRES. & MGR. ECA'S PITTSBURGH PLANT:

THIS MONTH'S SPECIAL

PUMPCRETE—Model 190 Rex single Pumpcrete, #CP-114, 4 cyl. Wauk. gas eng., remixing hopper. Cap. 23-30 yds. per hour. 400'—7" pipe. New valves, liners & pistons. A-1 shape. Only $6,500.00

BINS

1—100 ton Blaw Knox Mdl. P-3100, 3-compt. batch bin, 1½ yd. #63B weigh batcher. Like new.

CRANES, CRAWLER

1—955 P&H 2½ yd., Ser. 5309, Cat. D-17000 Diesel eng., 70' boom, 1½ KW light plant, tagline, 3 yd. Type K light duty Owens clam bucket. Remote control, 32' hi tower. Excel. conditon.

1—1 yd. Northwest Mdl. 4 #3492, 40-80' boom, hi gantry, 15' jib, Mdl. KS Wisc. gas eng. Wt. 74,400#.

1—¾ yd. Koehring Mdl. 303, 6 cyl. Waukesha gas eng., 40' boom, wt. 42,200#. For rental.

CRANES, LOCOMOTIVE

1—25 ton Industrial Brownhoist Type G, 40-50-60' boom, 1946 Nat'l. Board Boiler. 150#. $16,000.

1—30 ton Model F Ohio Steam Crane, 50' boom. Code boiler, excel. condition.

DERRICK, GUY

1—Insley 20 ton, all steel, 115' mast, 100' boom, 18' B.W. Complete with blocks, turnbuckles, etc. Excel. condition.

EARTH DRILLS

1—Buda Hubron Earth Drill Model HBE, 16' drill tower, 24" helix, 4 cyl. Buda gas eng. Special rebuilt-ready to go. Only $1,000.

MIXER, 2 YD. CONCRETE

1—56S Koehring stationary, 40 HP G. E. sq. cage motor 220/440/60/3. Bargain.

Partial List Only—Please let us quote on your requirements.

Clifton Heights 3, Pa.
Suburb of Phila.
MAdison 6-2200

Pittsburgh 30, Pa.
P.O. Box 933-J
Phone FEderal 1-2000

EQUIPMENT CORPORATION of AMERICA

Chicago 12, Ill.
1155 S. Washtenaw Ave.
Phone NEvada 8-2400

New York 7, N. Y.
30-J Church St.
Phone WOrth 2-0036

FOR SALE
CRANE, DRAGLINE

Lorain Model 820, Ser. No. 11047, Caterpillar D-13000 Engine, excellent condition.

BASS ENGINEERING & CONSTRUCTION CO.

Birmingham, Michigan

Used Shovel Attachments

FOR SALE

3—NORTHWEST Model 25
3—NORTHWEST Model 6

HODGE & HAMMOND, INC.

720 Garrison Ave. N. Y. 59, N. Y.
Phone: Kilpatrick 2-2400

FOR SALE

H Beams & Bearing Piles

100 Tons	8"	H	31#	40'	In Stock
100 Tons	8"	BP	36#	40'	In Stock
100 Tons	10"	BP	42#	40'	In Stock
100 Tons	12"	BP	53#	40'	In Stock
100 Tons	12"	H	65#	40'	In Stock

WE ARE NOW BOOKING ORDERS FOR H BEAMS AND BEARING PILES FROM 6" TO 12" IN ALL WEIGHTS.

6 Week's Shipment From Mill

WRITE WIRE PHONE

ALBRO STEEL COMPANY

47-29 Van Dam St. Long Island City 1, N. Y.
Stillwell 4-2720
Stillwell 6-5448

Equipment Values!

SHOVEL-DRAGLINE—Thew-Lorain TL30, powered by "Cat" Diesel eng., ¾ yd. shovel front, 40 ft. crane boom, dragline equipment., ¾ yd. Hendrix dragline bucket, ¾ yd. Owen clamshell bucket. FOB Louisville $13,750.00

TRACTOR-DOZER — "Caterpillar" D4, ser. #74358, w/LaPlant-Choate angledozer. Just out of our shop and in A-1 shape. Available at once from Paducah branch. FOB Paducah, Ky. $3,150.00

CRANE-SHOVEL—Michigan, mod. T6K, #T-406, ⅜ yd. shovel front and 20 ft. crane boom, w/Hercules JXC gas. engine, six 11.00x26 tires. Completely rebuilt, looks and runs good. FOB Paducah, Ky. $8,250.00

MOTOR GRADER—Caterpillar No. 12, 9K series, with cab and scarifier. A good used machine in right operating condition. FOB Louisville. $7,250.00

TRACTOR-DOZER—Caterpillar D6, ser. #5R4811, w LaPlant Choate hyd. angle blade, 16" shoes, crankcase guard, pull hook. Checked over, cleaned, painted. Ready to go. FOB Louisville.. .$5,750.00

SCRAPER — CATERPILLAR, Model 80, ser. #2D2195, 20 yds. heaped, with oversize 24.00x29 rear and 21.00x24 front tires. Only a few weeks old —98% new. Reg. price $14,100.00. A tremendous bargain. FOB Paducah, Ky. $10,750.00

ROY C.
WHAYNE
SUPPLY CO.
800 W. MAIN ST., LOUISVILLE, KY.
EVANSVILLE, IND. PADUCAH, KY. ASHLAND, KY.

FOR SALE

1—1055 P&H Dragline and Shovel Combination — Buda Diesel — 1948
1—955 P&H Dragline—Caterpillar Diesel—1946
1—362 Marion Shovel—Caterpillar lar Diesel—1946
1—61W Byers Traveler—Buda Gas —1947
1—407 General 1 Yd. Dragline and Shovel Combination — Cummins Diesel
1—LS40 Speeder Shovel and Backhoe—Gas
2—307 General ¾ yd. Shovels —Buda Diesel
2— 201 Galion Graders—International Diesel
1—Austin Western 10 Ton Roller—International Diesel
1—Huber 10 Ton Roller—Gas
2—BBU Wooldridge Scrapers—12 cu. yd.
1—Blaw-Knox Finisher—20-25
1—Loomis Clipper Well Drill

MASTERS CONTRACTING CORP.
Kingsley, Pa. Phone—Brooklyn, Pa. 2154

PROTECT EQUIPMENT

U.S.A. Air Corps
LIGHT BROWN
(CORONADO TAN)
ENAMEL
REGULAR $30. VALUE
5 FULL GALLONS FOR ONLY **$3.95**
SHIPPING WEIGHT 68 LBS. F.O.B. PHILA.

A fine bodied, lusterless, enamel made to U.S. Air Corps Spec. #6480—Class 20. For all wood and metal surfaces, protects against weather, rust and corrosion. For brush or spraying inside or outside, can be blended with other colors. Ideal for road equipment, scrapers, cranes, trucks, tool sheds and outbuildings. Makes fine prime coat.

Rated Firms Open Account—Others Send Check

1744 1944

J. JACOB SHANNON & CO.
214 N. 22nd St., Phila. 3, Pa.
The Oldest Equip. House in Phila.

FOR SALE

4—Caterpillar DW-10 with LaPlante Scrapers new late 1946 Excellent condition.
2—Euclid 13 yd. Bottom Dumps Rebuilt, tires excellent, Cummins engines
1—Burch 32 foot Car Unloader new

CLARK-WILCOX COMPANY
118 Western Ave. Boston 34, Mass.

FOR SALE

Subject to Prior Disposition
Complete Earthmoving Outfit

Consisting of: One (1) IHC TD-24 Tractor with BV 3 Euclid loader (Modified) with Cummins Diesel power, Eight Euclid 13 cu. yd. Bottom Dump Trucks. Also can furnish one or two D-8 Caterpillar dozers and one or two Caterpillar #12 Auto Patrols in this package.

This outfit just completing job in Southeast U. S. and is immediately available.

Wire, Phone or Write:

FINGER LAKES EQUIPMENT CORP.
100 Greenway Ave., Syracuse, N. Y.
Phone: Syracuse 9-6605

FOR SALE

American Whirley R-25, Oil Burning Steam, presently mounted on steel barge 100'x42'x12', offered as a unit or together with barge.
Steam piledriving hammers of all sizes.
4 Steam piledriving rigs.
Steam boilers and leads.
Rock drilling equipment.
Air Hoists.

G. A. BASS
Birmingham Theatre Bldg.
Birmingham, Michigan

FOR SALE

Complete Concrete Plant

Heltzel 100 ton 4 compartment bins with bulk cement, water heater & meter.
1—4-½ yd. Blaw Knox Truck Mixer mounted on L.F.S.W. Mack Chassis.
1—3-yd. Jaeger Truck Mixer mounted on EQ Mack Chassis.
This equipment available immediately. Condition excellent. Used one season.
1—Model 25 Northwest—Pull Shovel—70' Crane Boom—Rudimatic Tagline—Cat Diesel.

EVANSVILLE CONSTRUCTION COMPANY
P. O. Box 295 Evansville, Indiana

Northwest, Model 25, ¾ yard crane
Link-Belt ½ yd., Model LS60, equipped with crane and backhoe
Parsons Trencher, Model 25
Caterpillar D8 Tractor with bulldozer
Allis-Chalmers HD-19 Tractor with bulldozer
Allis-Chalmers HD-14 Tractor with bulldozer
Adnun Black Top Spreader
McCarthy Horizontal Drill, truck mounted

All of this equipment is now operating and may be inspected in the vicinity of Dover, Delaware.

GEORGE & LYNCH, INC.
M-210 Delaware Trust Bldg.
Wilmington, Delaware

For Sale

A-1 CONDITION

1—65FD—15 Ton Rear Dump Euclid
1—80FD—15 Ton Rear Dump Euclid

EUCLID-MEMPHIS SALES, INC.
Memphis, Tenn.
Phone 8-0491 P. O. Box 2493

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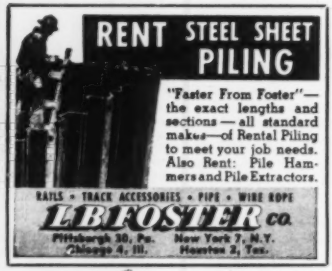
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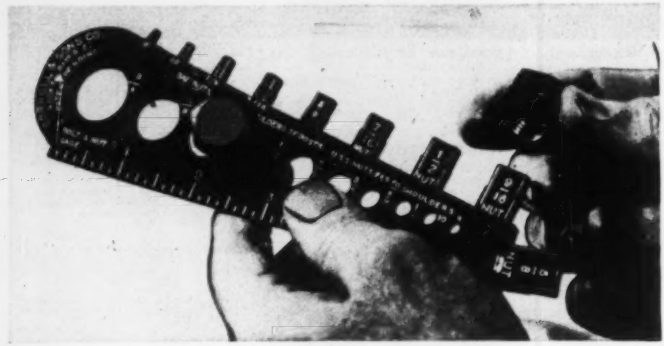
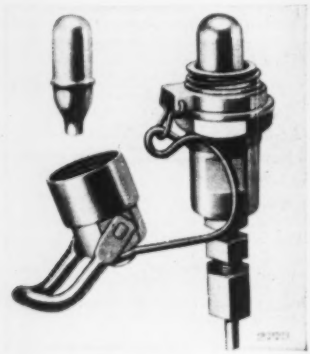


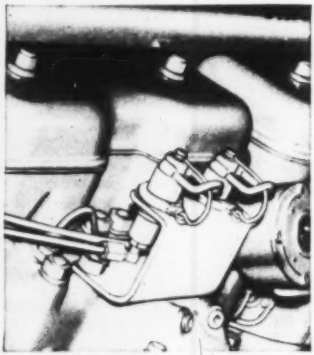
New light-weight pocket bolt & nut gage

If you have ever had a box full of assorted nuts and bolts and have struggled long and hard to sort them into proper bins, you will be happy to hear of the new pocket style bolt and nut gage recently put on the market. Made of hard, wear-resisting Polystyrene plastic in bright colors, the new tool will gage bolts and screws from No. 8 through ¼-in. dia; nuts from No. 8 through ⅜-in. dia.

Bolts are gaged very quickly by pushing them through the size holes, and nuts by dropping them over the plugs on top edge of the gage. The plug gage tells not only the diameter of the nut, but whether it is Coarse Thread (U. S. S.) or Fine Thread (S. A. E.).

Measuring only 7¼ in. overall, the new gage is accurate to .005-in. tolerance. Sorrell & Sons Company, 295 Argyle Road, Rocky River 16, Ohio.



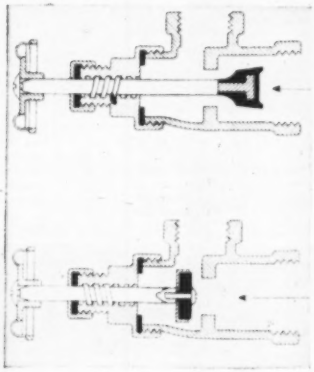


Easier winter starting . . . with ether

Ether starting aids are not brand new, but they are becoming universally popular in areas that have periods of freezing and sub-zero temperatures. These ether groups, which are now offered for all Caterpillar diesel engines, are special attachments that give cold engines a substantial starting punch at the right moment. They are safe, easily mounted, require no servicing, and are both simple and inexpensive to operate.

Storage of ether has been hazardous until the introduction of the steel capsules pictured above. These are similar to carbon dioxide cartridges used in a variety of present-day applications, and are absolutely leakproof. They contain a percentage of gas which provides the required pressure for discharging the ether, and it is therefore essential that the applicator (also shown above) be mounted at an angle of not more than 45 deg from vertical. The ignition point of ether is extremely low and, in burning, develops considerable heat. The heat of compression present in a diesel engine at usual cranking speeds and at air intake temperatures as low as zero degrees F is usually sufficient to ignite an ether-air mixture. Injected directly into the inlet manifold of the diesel, a small quantity of the mixture will cause the engine to start and develop enough heat to ignite the fuel injected into the cylinder.

Ether starting groups are available for various model engines to replace the manifold air heater groups formerly used on them. The connecting tube from the applicator leads directly into a plate covering the inlet manifold opening formerly used for the manifold air heater. 9F39 capsules which are used with all groups cost only 25 cents. Caterpillar Tractor Company, Peoria, Illinois.

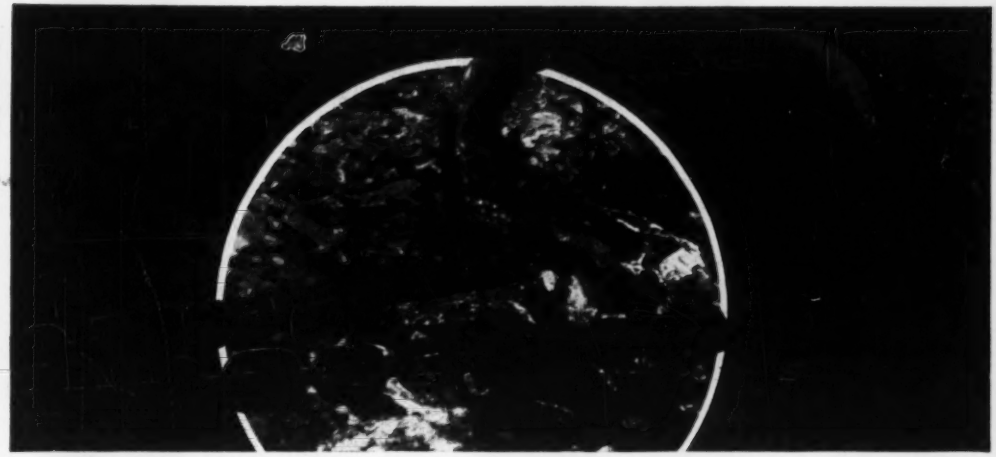


Outstanding innovation in valve design

Operating on a new principle, this Rand seal makes possible a valve that is leak-proof, long wearing, easy to operate and comparatively inexpensive, according to its manufacturer. Essential operation of the new seal is based on working with, rather than against, the fluid flow. The cone-shaped seal is closed in the same direction as the movement of the liquid, allowing high or low pressures to seal the valve.

The comparative picture above replaces the proverbial 1000 words. The cup-shaped conical washer incorporates an imbedded metal plug which eliminates bending and warping, making the seal leak-proof. If the contaminants in the fluid, such as sand or grit, are not pushed ahead of one sealing line contact, the conical shape of the seal provides establishment of a new line contact without damage to the bore. The rubber member of the

(*Continued on page 76*)



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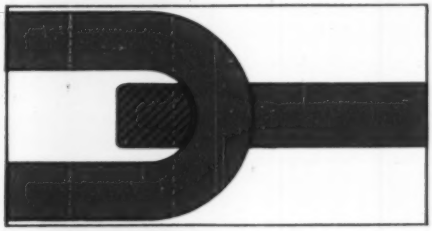

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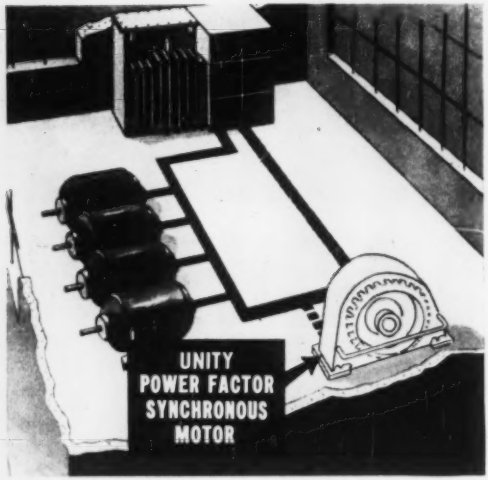

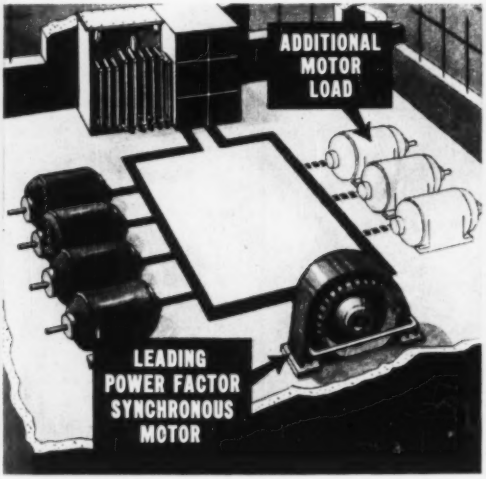

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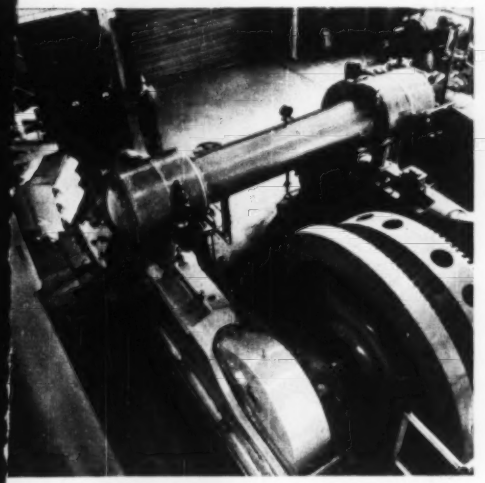

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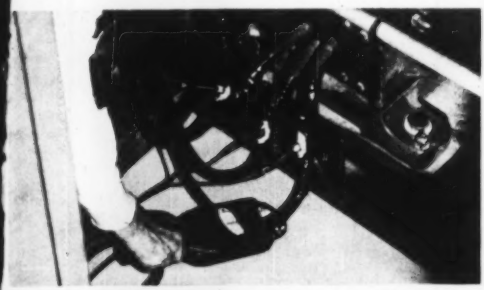

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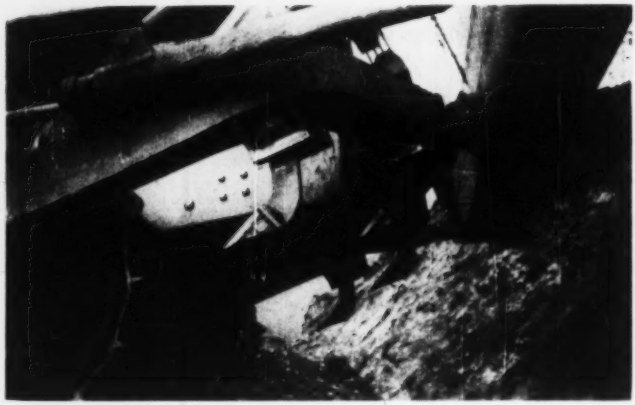
New controls for the "Cat" D4 tractor equipped with HT4 Traxcavator now match the higher seat that gives a better view of dig, lift, carry, dump and bulldozing operations. The revised design by **Caterpillar Tractor Co., Peoria 8, Ill.** allows greater length without interference, for gear shift, flywheel clutch, and steering clutch levers. Operator fatigue is also said to be reduced.

An **underlayment and floor leveler** called Plastic Mix, is designed to bond tightly to metal as well as other materials. Developed by **Pioneer Latex & Chemical Co., Inc., Lincoln Boulevard, Middlesex, N. J.**, it is intended to provide a cushioned level surface for laying decorative flooring, is said to be easily applied and sets dry in two hours.



Preco back-rippers

Here is a close-up of Preco back-rippers mounted on the back of a bulldozer moldboard. They rip only when the tractor backs up, and are now available for both straight and angling blade bulldozers.

The four back-ripper housings are welded to the under side of the "C" frame on angling blade bulldozers, permitting their use irrespective of the angle of the blade itself. The teeth float on top of the ground when the tractor moves forward, and automatically dig and rip when it backs up. Thus the dead-head back-up time becomes a profitable operation and enables the blade to make a full load on each forward trip. If desired, the back-ripper teeth can be locked up out of the way.

Rocks, roots, shale and other material, often impossible to blade out easily can be ripped out with a single back-up pass with these rippers. PRECO INC., 6300 EAST SLAUSON AVENUE, LOS ANGELES 22, CALIFORNIA.

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MANUFACTURERS' PUBLICATIONS

Crushing-Screening-Washing equipment—Called Equipment Bulletin No. SMD-1, this four-page self-mailing bulletin features the line of aggregate crushing, screening and washing equipment made by Diamond Iron Works, Inc. It covers basic production units as well as portable and stationary crushing plants and portable primary crushing plants in the Diamond Iron line.

Descriptions, sizes and illustrations of the units are included. DIAMOND IRON WORKS, INC., DEPT. R, MINNEAPOLIS 11, MINN.

Copying machine—A 4-page illustrated folder describes the new Model 20 Copyflex—a specially designed unit to provide low-cost standard 46-in. printing width for producing medium volume of copies. This 46-in. printing width allows ample leeway for the customary 42-in. roll stock, or for multiple cut sheets inserted side-by-side. Like all Bruning machines it uses no vapor developer and therefore cannot emit fumes. No exhaust ducts, plumbing or other installations are necessary. Merely plug it into a standard 115 volt a. c. electric power circuit.

The usual procedures here call for black-on-white copies, but this machine can print in 20 color combinations; black, brown, red or blue lines on white, pink, blue, green or yellow paper. CHARLES BRUNING COMPANY, INC., 100 READE ST., NEW YORK 15, N. Y.

Belt conveyor carriers—For every round trip of the average conveyor belt, its carriers rotate hundreds of times. Tons of materials pass over them every hour. They are subjected to extremes of moisture and temperatures. No wonder then that they are important and that a 20-page booklet has been dedicated to their care and unkeep. It is packed with information from cover to cover on every type made by the company along with information on seals, alignment, lubrication, spacing, etc. Available from STEPHENS-ADAMSON MANUFACTURING COMPANY, AURORA, ILLINOIS

"Mobilized pipe cleaning—anywhere—any time"—is the title of a 6-page folder which describes services of a pipe-cleaning contractor. Their secret is ready mobility of equipment. The booklet describes how they spot manholes on a scheduled route. If man-

(Continued on page 79)

ANOTHER
WOOD ROADMIXER PRODUCES
. . . "excellent roads at one-third the previous cost"

Board of County Commissioners, Pinellas County, Fla. From left to right on Wood Roadmixer: R. Hosey Wick, Vice Chairman; Edward H. LaVoie, Chairman; Sidney S. Parry. Standing next to mixer: James R. Shopcraft. Behind man with cap: John Chesnut. Photo by Land wehr & Landwehr, Largo, Fla.

taxpayers get low-cost roads!

Edward H. LaVoie, Chairman, Board of County Commissioners, Pinellas County, Florida, writes as follows:

"We realized that in order to build good low-cost roads it was necessary for us to utilize our local materials, which are shell — sand — marl — material from our County-owned pit. Due to the high moisture content of this pit material, emulsified asphalt was chosen as the bituminous binder because of its adaptability. It could be mixed by the Wood mixer as it came from the pit, thus eliminating the expensive and time-consuming process of aeration.

"Up until the present time we have been forced to use the expensive high-type aggregate, but since purchasing the Wood Roadmixer we are now able to produce excellent roads at **one-third the previous cost.**"

For literature and prices on Wood Roadmixers and Wood Roadbuilding Equipment, see your Wood distributor or write us direct.

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on Louisiana Pipe Line Project

The Houston Contracting Co., Houston, Texas, has recently completed the laying of a pipe line for the Texas Gas Transmission Co. near Shreveport, Louisiana. Equipment performed smoothly and dependably with the help of Gulf quality lubricants and fuels.

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Write, wire, or phone your nearest Gulf office and arrange to use Gulf quality products on your next job. Along with that good Gulf service, they are quickly available to you through more than 1400 warehouses located in 33 states from Maine to New Mexico. Gulf Oil Corporation · Gulf Refining Company, Gulf Building, Pittsburgh 30, Pennsylvania.

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Manufacturers Publications . . .

holes are "lost" they locate them with magnetic finders. Straight-rod men take over, pushing a rotating rod through to the next manhole, opening the sewer, and than make a pull-back connection for bucket machine cable. Bucket machine crews then take over, cleaning the unseen sewer mains and bringing up silt and sludge to be hauled away. ACE PIPE CLEANING CONTRACTORS, INC., KANSAS CITY, MISSOURI

Honing machines—This 16-pager is not a mere bulletin describing honing machinery, but is rather an actual treatise on honing. It describes fully the art of precision honing of internal cylinders. Several models are shown with complete specifications for each. Other sections are concerned with stones, spot insertion and removal, speeds and coolants. C. ALLEN FULMER COMPANY, 1211 FIRST NATIONAL BANK BLDG., CINCINNATI 2, OHIO.

"Industrial transportation"—is the title of a folder which provides an acquaintance with the complete scope of Easton experience and facilities. It includes pictures of their off-highway trailers and truck bodies, mine and quarry cars, rocker dumps, industrial trucks, heavy-duty intraplant trailers and heavy-duty industrial cars. EASTON CAR & CONSTRUCTION COMPANY, EASTON, PA.

Swiss pattern files—Here is an 8-page brochure which features diemaker files, machine files, and needle and riffler files and the various types are illustrated and fully described. The catalog, No. 51-821, is completely illustrated with both side and end view of each file. Complete information is also included on sizes and prices. THE DOALL COMPANY, 254 NORTH LAUREL AVENUE, DES PLAINES, ILLINOIS.

Anchorite 100—is a phosphatizing compound that changes the surface of steel, iron, zinc and cadmium parts into an inert phosphate coating. This new surface provides an excellent base for organic coatings—a base that protects the metal against all types of atmospheric and chemical corrosion. Printed in two colors, the 8-page booklet describes in detail common causes of paint failure and how they can be prevented. It points out that the product meets U.S. Army specifications. Highly illustrated, it is available from OCTAGON PROCESS INC., 15 BANK STREET, STATEN ISLAND 1, N. Y.

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Army-planned floor covering tests provide new answers for builders

What happens when you spill oil, acids or other reagents on different types of floor coverings?

Specific answers have long been sought by construction men as a guide in selection of materials. It is a commentary on the times, that the latest and most convincing answers have come as a by-product of the nation's military expansion program.

Faced with building hundreds of new installations ranging from wooden barracks to massive multi-million dollar buildings, the Chief of Engineers, Department of the Army, decided to find out what floor coverings will give the best service under various conditions of use.

At the request of his office, an investigation was made by P. A. Sigler and T. H. Bone of the National Bureau of Standards. The results of their tests have now been released for the benefit of the Army —and many of the findings are of vital interest to other builders.

• **Wide range**—The National Bureau of Standards tests were made on 40 different floor coverings from 17 manufacturers to find out. Mr. Sigler and Mr. Boone tested coverings ranging from such general types as vinyl, rubber, linoleum, asphalt and printed enamel to several proprietary materials. The reagents applied to the coverings included beef tallow, kerosene, cottonseed oil, lubricating oil, solutions of soap, sodium carbonate, trisodium phosphate, sodium hydroxide, acetic acid, sulfuric acid and hydrogen peroxide.

Since there was no standard method of evaluating these properties Sigler and Boone devised a method that would essentially measure the depth of a scratch made by a "mechanical fingernail" after the floor coverings had been exposed to the reagent for 24 hours.

In detail, this is how the tests were made:

• **Method**—The floor coverings were prepared for the test by cementing the surface of 2 × 4" specimen on one end of a hollow sheet-metal cylinder 1½" in diameter. Ten millimeters of the test reagent was poured into the open end of the cylinder and then covered to retard the evaporation for test purposes.

After 24 hours the reagent was poured off and the cylinder removed. The exposed surface of the specimen was blotted lightly and examined visually for defects.

Then it was placed on a turn table of a Taber Abraser and a 1" scratch made by means of a sharp-edged tool on a pivoted beam under a load of 500 grams. The tool was curved so that the scratch width was reasonably proportional to its depth. A scratch depth of over 150 mils was considered to indicate a softening effect; a scratch width of between 100 and 150 mils, a slight softening effect; and a width below 100 mils, no softening effect.

• **Results**—Of the many floor coverings tested, the vinyl plastics proved, in general, most resistant to grease and oils. With a few exceptions they also showed fair resistance to alkalies, while a number of the plastic floor coverings were adversely effected by dilute acids.

• Regular asphalt tiles showed very poor resistance to most of the oils and only fair resistance to beef tallow. Some of the so-called "grease-resistant" asphalt tiles were not outstanding when it came to grease and oil resistance, and most showed poor resistance to dilute acids.

• All of the linoleums were materially affected by alkaline cleaning solutions and were partially disintegrated by a 1% solution of sodium hydroxide. They also made a poor showing in resisting acids and hydrogen peroxide, and with the exception of brown battleship linoleum, were appreciably softened by beef tallow.

• None of the rubber tiles withstood the effects of kerosene but all were resistant to beef tallow. Their resistance to dilute acids and alkalies ran from good to poor.

• Generally the enamel-print felt-based floorings were damaged by alkaline cleaners, dilute acids and kerosene. The mastic (bituminous) felt-backed floor coverings had poor resistance to kerosene and were slightly softened by beef tallow. A proprietary floor covering with a resin-coposition wearing surface showed fair to good resistance to the various oils and reagents with the exception of kerosene and dilute acids. A cork-composition flooring proved fair to good in resisting the many oils and reagents with the exception of sodium hydroxide.

• **Conclusion**—From an overall viewpoint, the vinyl plastics tested held the best properties for use in locations frequently exposed to grease, oils, and alkalies. But at least one of the vinyl plastic samples showed a poor resistance to five of the ten reagents, and it is questioned if vinyl plastic can be satisfactorily installed on concrete subfloors which are in direct contact with the ground unless the concrete floor has been thoroughly membrane waterproofed. Asphalt tile, on the other hand, can be successfully laid on a concrete floor subject to damp conditions, the tests indicated.

• **Pre-testing desirable**—None of the reagents were highly destructive to all the samples. At least two of the materials showed excellent resistance to each reagent. Although materials of a given type tended to be resistant to the same reagents, the difference between the resistance of individual samples of a certain material was large enough to show that testing samples of floor coverings that will be used where severe conditions are anticipated is highly desirable.

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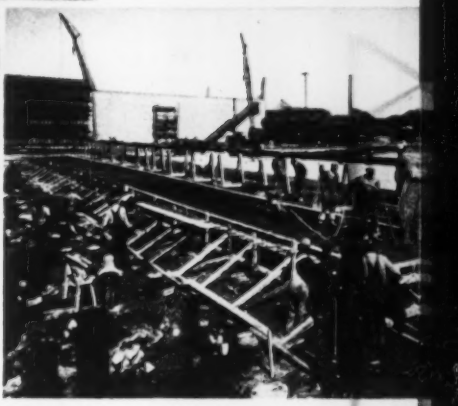

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